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ABSTRACT

This book contains 12 graphic organizers to use with a technique called the "triple-agenda lesson," a single lesson or unit that integrates the graphic organizers as a tool for promoting thoughtful study of course content in a cooperative learning structure. The goal of this technique is to empower each learner to become self-directed regarding what and how to learn. Each chapter of the book covers one graphic organizer and includes instructions on how to use it in the classroom; a sidebar highlighting the purpose, vocabulary, and thinking skills employed; suggestions for testing; optional activities; topics for elementary, middle school, and secondary levels; and examples. The graphic organizers included are: (1) "The Prediction Tree"; (2) "The KWL"; (3) "The PMI"; (4) "The Information Chart"; (5) "Fat and Skinny Questions"; (6) "The T-Chart"; (7) "The Gathering Grid"; (8) "The Question Matrix"; (9) "The Scale"; (10) "The Frame"; (11) "The Problem-Solving Chart"; and (12) "The Decision Maker's Flow Chart." An invent-your-own model is also included, along with chapters on integrating organizers across the curriculum and evaluating student work. Copies of the organizers are included. Contains 23 references. (TJQ)

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THE COOPERATIVE THINK TANK II

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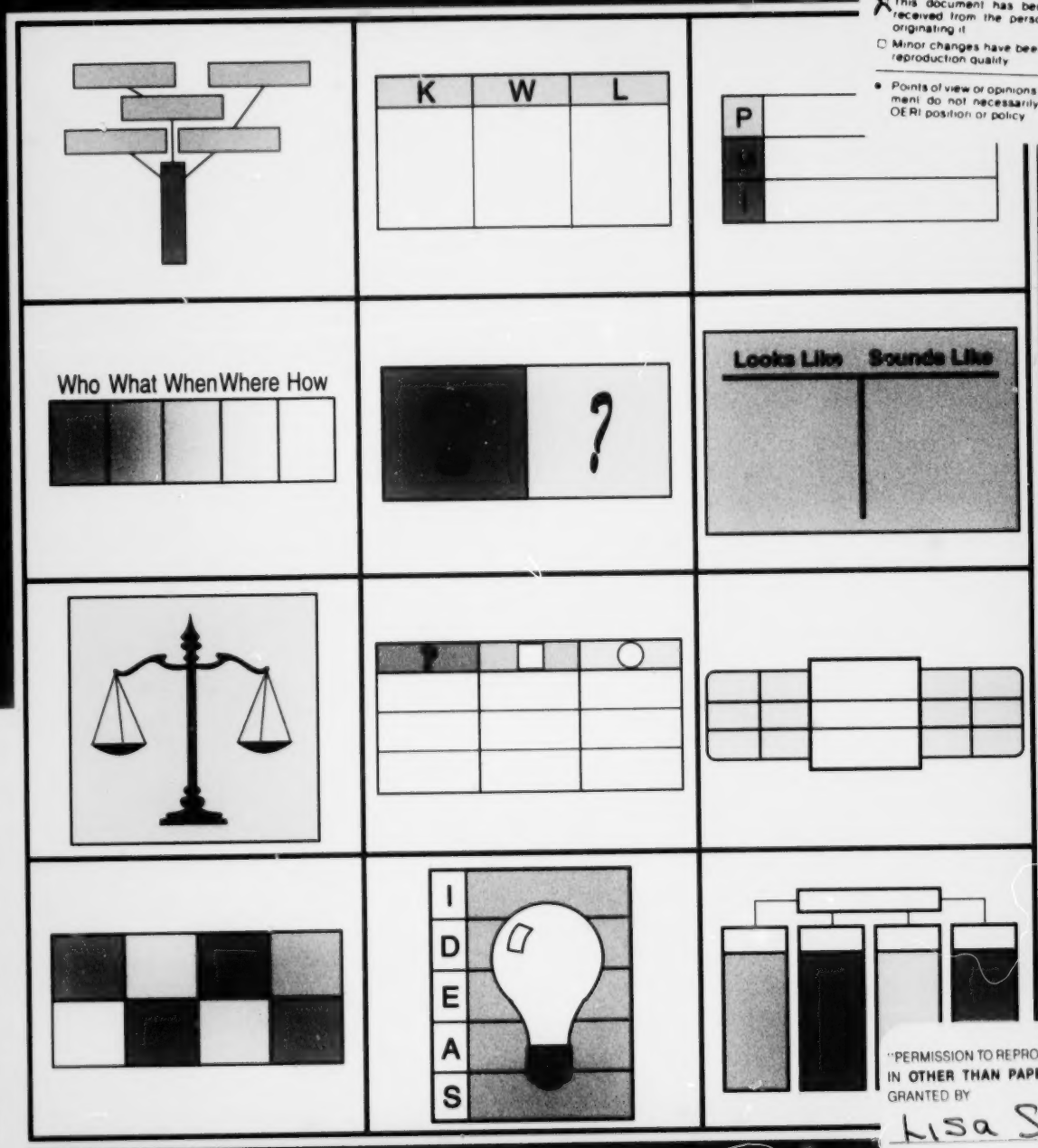

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The Cooperative Think Tank II

Graphic Organizers to Teach Thinking in the Cooperative Classroom

By
James Bellanca

SKYLIGHT PUBLISHING

The Cooperative Think Tank II:
Graphic Organizers to Teach Thinking in the Cooperative Classroom

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Table of Contents

Introduction iv

1. The Prediction Tree 2
2. The KWL 10
3. The PMI 18
4. The Information Chart 26
5. Fat and Skinny Questions 34
6. The T-Chart 42
7. The Gathering Grid 50
8. The Question Matrix 58
9. The Scale 68
10. The Frame 78
11. The Problem-Solving Chart 84
12. The Decision Maker's Flow Chart 92
13. Invent Your Own 100
14. Integrating Organizers Across the Curriculum 104
15. Evaluating Student Work 108

Blacklines 114

Bibliography 129

Introduction

In the summer of 1991, I attended a conference conducted by Peter Senge, author of *The Fifth Discipline*. During the afternoon session, I had a strong feeling of déjà vu. As Senge instructed our investigation of cause-and-effect patterns in learning organizations, I was reminded of my first introduction to cause-effect analysis with Edwards Deming in 1982. In that program, I first saw the "fishbone" chart as a tool for analyzing problems.

In subsequent years, I understood that the fishbone fit into a new learning framework called the graphic or cognitive organizers. After the fishbone came the concept map (Gabrielle Rico and Tony Buzan). After the concept map came the Venn diagram (Thomas Venn via my daughter's math class) and recollections about the defuzzing wheel (Robert Hawley), also called the "web." From these four initial graphic organizers came the idea for *The Cooperative Think Tank*, the predecessor of this book.

As I work with upper-grade teachers (middle school and beyond) I hear over and over the concerns about the practicality of using graphic organizers when there is "so much content to cover." Knowing the curricular pressures on upper-grade teachers to cover content, I recognize two issues. On the one hand, these teachers are, as many of the "experts" in cooperative learning would agree, confusing the forest with trees. Teachers' overriding concern about covering the material is blocking their ability to see the potential power of cooperative learning to facilitate greater achievement among their students. For the second part, the cooperative learning "experts" have not provided teachers with tools such as graphic organizers that enable them to make best use of the cooperative learning model.

A discussion with Beau Fly Jones about what she calls "instructional agendas" clarified an idea for me about the connections among required curricular content, cooperative learning, and graphic organizers. In my search for better ways to structure cooperative learning and information processing, I saw for the first time the most important connection among these three agendas. Rather than view each as a stand-alone agenda that somehow had to be squeezed into the already over-stuffed daily schedule, I needed to look at the three from an integrated perspective. Usually, we look at integration from a thematic view. We tie different topics or courses around a theme and teach the connections from a content perspective, such as "American studies" (literature and U. S. history) or "environmental studies" (science, math, social studies). Why not nest content and thinking patterns within a cooperative learning framework? Hence the "triple-agenda lesson"—a single lesson or unit which integrates the graphic organizers as a tool for promoting thoughtful study of course content in a cooperative learning structure.

The more opportunities I have to work with students in the classroom and with teachers in professional development, the more powerful the triple-agenda model becomes. In spite of my brainwashing in the behaviorist framework for learning and the plethora of materials, instructional designs, and school organization patterns that reinforce the notion of learning as the filling of little boxes and the modification of miniature skills, I grow in my conviction that learning is much more than filling in workbook blanks, memorizing formulae, or spitting back one-word answers on a scantron form. The more my students take to the triple-agenda approach, the more I solidify my conviction that learning is a process of "making sense," of connecting new information to old, of discovering patterns in what we learn, and of controlling what and how we learn by developing a wide array of strategic learning tools.

My own experiences with the triple agenda are corroborated by similar experiences in primary classrooms, middle school, and high school. Primary teachers report using the organizers in cooperative lessons to help students organize thinking patterns. Middle-grade teachers find the structures invaluable in bridging wide spreads of ability to comprehend textbook material; strong readers collaborate with weaker readers to understand key textual information. High school teachers use them as strategic learning tools with their students. For the first time, many suggest, they now possess the instructional tools to make learning of their content "concept-centered" rather than "fact-limited."

Beyond the increasing number of classroom successes with the triple agenda, emerging literature on the nature of learning supports the nesting of cooperative learning, thinking patterns, and curricular content. The research of Jones, Palincsar, Pearson, Brown, Ogle, and Vygotsky along with the thinking of Berliner have given strong credence to what is named "the constructionist school."

In *The Cooperative Think Tank II*, I have developed twelve more graphic organizers to add to the original twelve in *The Cooperative Think Tank*. In addition, I have included an "invent your own" model. I did this to suggest that the most logical extension of the constructionist approach is that each learner learn the "how-to" of strategy design. In this way, the learner (teacher or student) is not limited to replication and duplication. Instead, the learner has the tools to create strategies to cope with the complexities of our "information explosion" society.

Although the ultimate goal of these *Cooperative Think Tank* books is to empower each learner to become self-directed in what and how to learn, it is important to remember the basics when introducing learners to the appropriate use of each organizer. My experience and the feedback from seasoned teacher-users of the organizers suggest that it is best to follow these guidelines when introducing an organizer.

- Explain to the students what organizer they are going to learn and how it will help them see their thinking.
- Demonstrate on the blackboard or overhead with the entire class how to use the organizer. In the demonstration, use familiar, fun, or previously studied information. This will prevent students from confusing "content" with "how to use" the tool. Walk through each "how-to" step.
- Provide hands-on practice with the organizer. Using small cooperative groups, give each team a large sheet of newsprint and a colored pen or marker. Have the team recorders copy the organizer. Provide the groups with a brief (one to three paragraphs) editorial, article, or textbook excerpt. Give step-by-step instructions for using the graphic organizer with this practice material.
- Walk among the teams. Observe and comment as needed.
- After five or ten minutes, stop the teams' work and ask two or three teams to share completed projects. Check for understanding and celebrate successes. Post completed organizers for all to see.
- Give instructions for using a graphic organizer in the first assignment. Distribute one copy of the related blackline master per team. Point out where and how teams can use the organizer you have selected.
- As teams work together and organize data, walk among teams and encourage proper use of the organizer in the project.
- As time allows, have teams share completed assignments with each other.

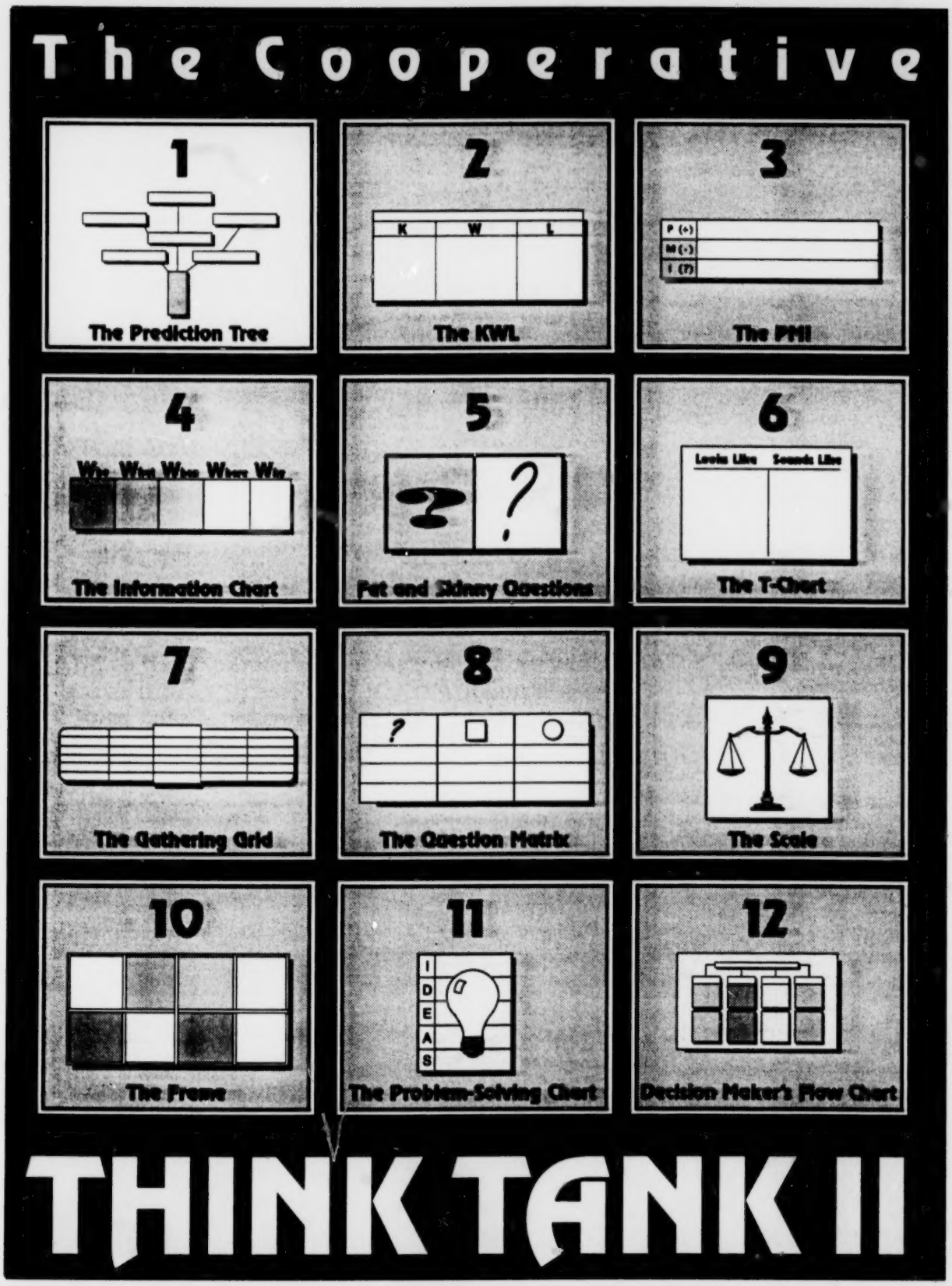
A consistent concern that emerges with this methodology has to do with tests and grades. While there is more than sufficient literature to show that students will perform better on grades and do no worse on standardized tests, many fail to see that the change of *method* inherent in this approach does not require a change in *goal*. Those that step back from using these tools might best be compared to a 1990s car owner who insists on staying with a Model A or to a major airline executive who might claim the only worthwhile plane is the single engine biplane.

Graphic organizers embedded in a cooperative environment are more powerful teaching tools than teacher talk or conventional skill drill techniques. The graphic organizers are also tools for more sophisticated and authentic assessment approaches. Although it may be some time before schools break the traditional assessment stranglehold, the combination of think tank tools with authentic assessment practices presents the opportunity to begin the transition into an approach to learning that truly "makes sense" for all learners. This approach moves classroom assessment from destructive competition, gold stars, and grades that produce more losers than winners to classrooms

centered on every student receiving encouragement. Indeed, Edwards Deming, the initiator of the worldwide movement for total quality management, claims that much of the blame for poor worker motivation in the American work force stems from the reward addiction and win-lose attitude that is fostered by the external motivation emphasis practiced in American schools. Deming tells us that we have been sold down the river by the inordinate emphasis our schools place on competition. Gold stars, candy, and grades kill the best motivator that exists, a win-win learning environment. If America wants to stay the worldwide leader in production and manufacturing, it will have to change schools into cooperative learning places where students have internal motivation to think and problem-solve.

From a learning perspective, the creation of the classroom as a cooperative think tank is the central aim. To accomplish this, start with the single organizer that most fits your required curriculum. Teach and reteach it until your students strategically apply the organizer whenever appropriate. Only after the students have internalized its multiple possibilities will you need to move to a second organizer. Over time, as they become true strategic learners, students who have a repertoire of thinking tools at quick command will generate more learning than they or you thought possible.

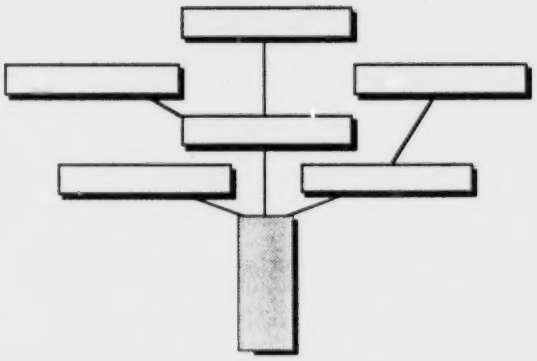
The Cooperative



THINK TANK II

CHAPTER

1



The Prediction Tree

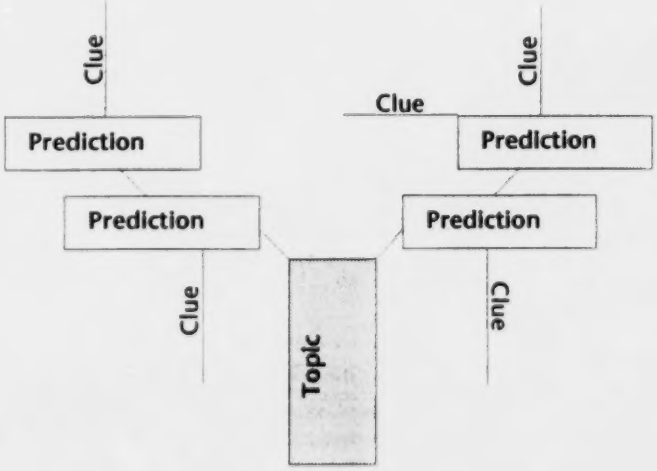
■ **PURPOSE**
To help students make predictions.

■ **VOCABULARY**
Predict—tell beforehand; prophesy.
Possible—that can be; that can be done; that can happen.
Probable—likely to happen; likely to be true.
Guess—form an opinion (of) without really knowing; opinion formed without really knowing.

■ **THINKING SKILLS**
Predicting, Inferring

INTRODUCTORY LESSON

Draw a thought tree on the board or overhead. Give each student a blank copy (see p. 7) with which to follow you as you label the *function* of each point.



Explain that this lesson will show a visual way to make predictions. Define each of the four terms listed in the vocabulary section.

Solicit examples of people the students know who use predictions in their day-to-day work. Ask the students to (a) explain how or why the person uses predictions, (b) distinguish when the person makes *possible* vs. *probable predictions*, and (c) clarify why a *guess* would not help that person. If needed, provide some examples to start the discussion (e.g., weather forecaster, scientist, race car driver, stockbroker, dentist, surgeon, store owner).

On the trunk of the tree write the topic you will use for demonstration. For younger students "Jack and the Beanstalk" and "The Three Bears" make good stories to use. Make an overhead master for each page of the story so that the students can follow as you read each page aloud. For older students, any Poe story makes a good starter. Provide copies for each student.

As you read the story, stop at regular intervals and ask, "What information or clues do you have so far about the outcome of the story?" Record these on the board. When you are about two-thirds of the way through, stop and ask the students to predict what they think the probable and possible endings will be. Have them tell you where to place each prediction: either as a probable branch or as a possible branch on the tree. Enter these on the tree. Next ask them to give you the major and minor clues to place on the tree. Write these in before continuing with the story. These clues include data to support and justify the predictions and are visibly connected to the predictions. From this point on, the students can stop you if new information merits a change in the tree labels. Be sure all students agree in any change. Discuss disagreements and vote if necessary.

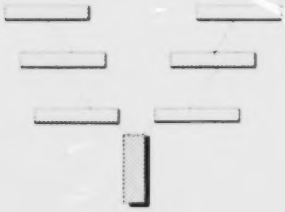
REVIEW AND TRANSFER

Before you introduce new readings, review the prediction procedures. If students have difficulty with accuracy in their predictions, leave the trees aside and go to a page-by-page prediction sequence. Start by reading the title of the story. Ask students what they predict will happen in the story. Ask them to give reasons. List the predictions and reasons on the board in two columns.

ELEMENTARY SCHOOL TOPIC
The Little Engine That Could

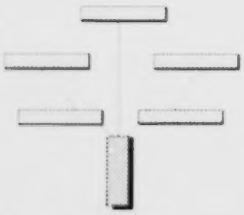
Story:_____

Prediction	Reasons



MIDDLE SCHOOL TOPIC
Avonlea

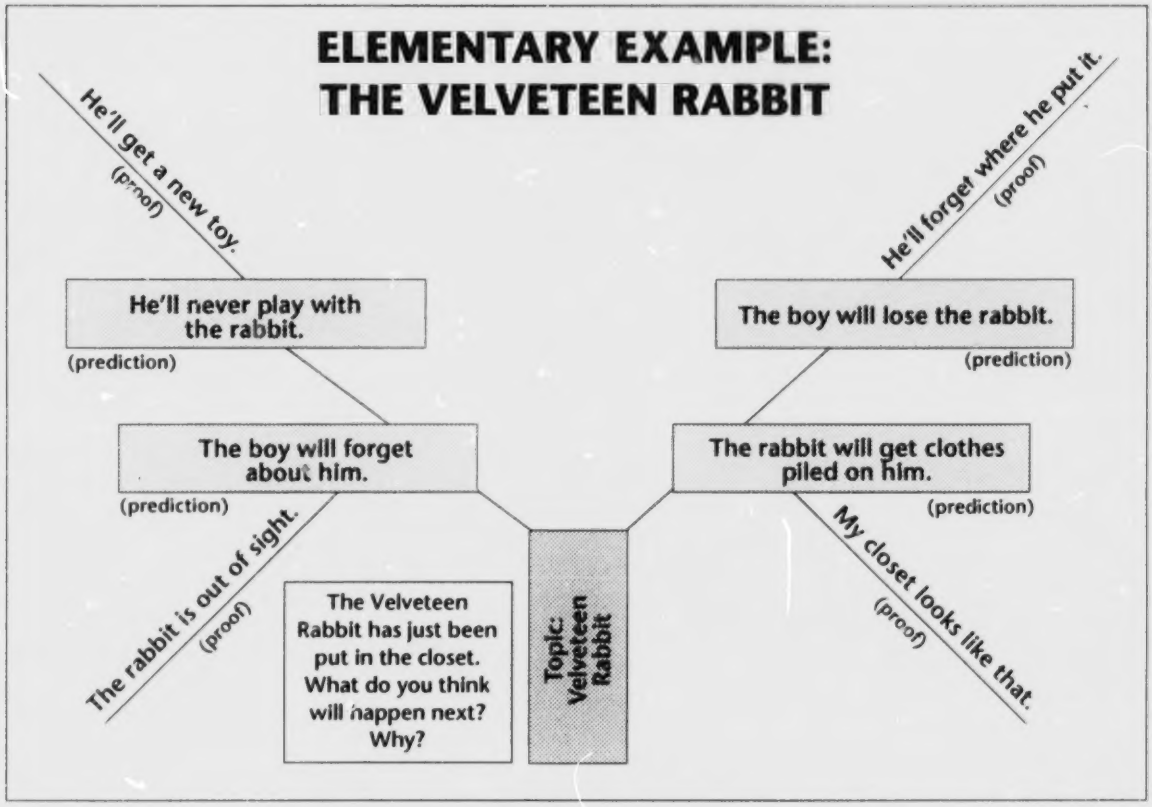
Once you have a number of possible ideas (accept every idea given and write it on the list), read another page. At the end of the page, invite any new possible ideas about the ending and the reasons. Record these. Repeat these two invitations at the end of each page. Continue to refine the list until the last page. At the end, review the two questions "What will happen?" and "Why do you think so?" with the class. It may help to make a bulletin board or poster with these questions. Use small groups to practice the procedure with different stories. Use newsprint so each group can share its thinking with the class.

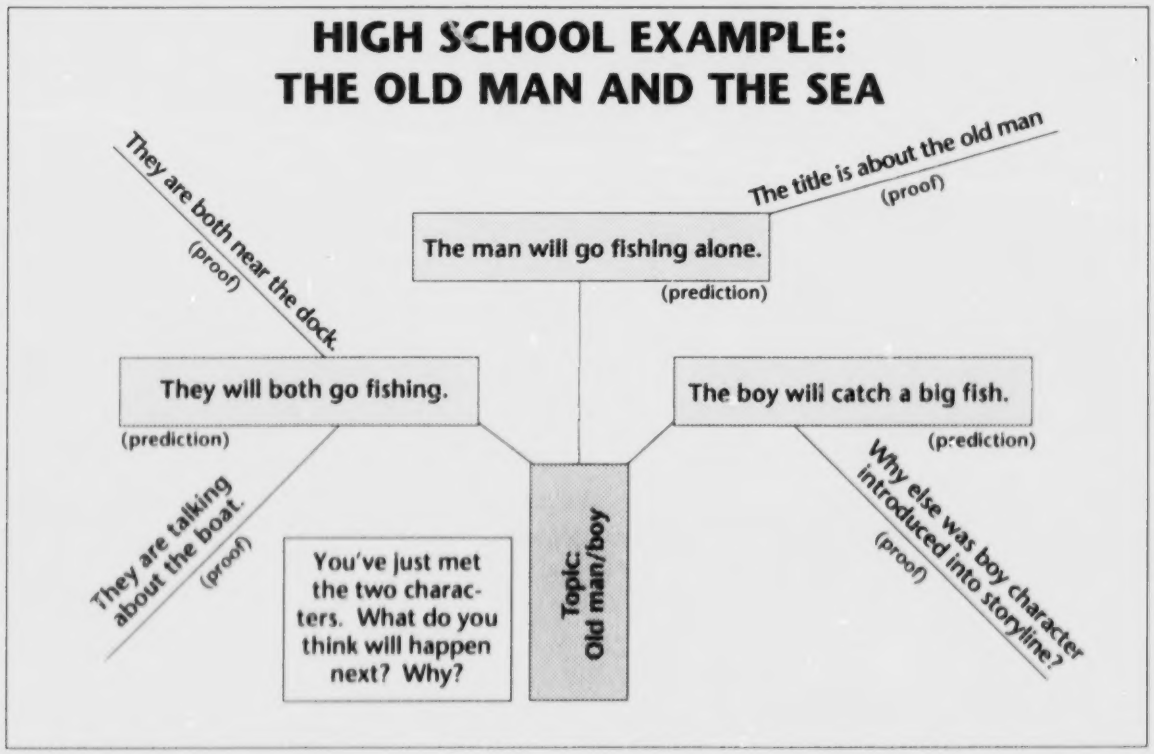


SECONDARY SCHOOL TOPIC
A Tale of Two Cities

When students are adept enough at predicting story endings, return to the thought trees. Assign different short stories to the groups. Be sure they follow these steps.

1. Complete the thought tree on newsprint. (Encourage each group to agree on detail and elaboration for possible and probable outcomes. Older students may add predictions about character changes as well as plot outcomes.)
2. Post and share the group's agreements.


ELEMENTARY EXAMPLE:
THE VELVETEEN RABBIT
He'll get a new toy.
(proof)
He'll never play with the rabbit.
(prediction)
The boy will forget about him.
(prediction)
The rabbit is out of sight.
(proof)
The Velveteen Rabbit has just been put in the closet. What do you think will happen next? Why?
Topic: Velveteen Rabbit
He'll forget where he put it.
(proof)
The boy will lose the rabbit.
(prediction)
The rabbit will get clothes piled on him.
(prediction)
My closet looks like that.
(proof)


HIGH SCHOOL EXAMPLE:
THE OLD MAN AND THE SEA
They are both near the dock.
(proof)
They will both go fishing.
(prediction)
They are talking about the boat.
(proof)
You've just met the two characters. What do you think will happen next? Why?
Topic: Old man/boy
The title is about the old man
(proof)
The man will go fishing alone.
(prediction)
The boy will catch a big fish.
(prediction)
Why else was boy character introduced into storyline?
(proof)

3. Invite groups to discuss the accuracy/inaccuracy of predictions and to discuss how they might improve their accuracy.

As students become more adept with predictions in stories, increase the complexity of the stories they use. Help them work more with *inferences*, or subtle clues, as the basis of their predictions.

TEST

To test knowledge and proficiency with the skill of predicting:

- ❑ Give a vocabulary quiz to distinguish guess, probable, and possible.
- ❑ Give a quiz to check recall of the labels and procedures for a thought tree.
- ❑ Give a quiz to check recall of the questions to ask when making story predictions.
- ❑ Assign a short story with a prediction tree. Check for accuracy.
- ❑ Assign a character in a play for a prediction tree. What will happen to the character?

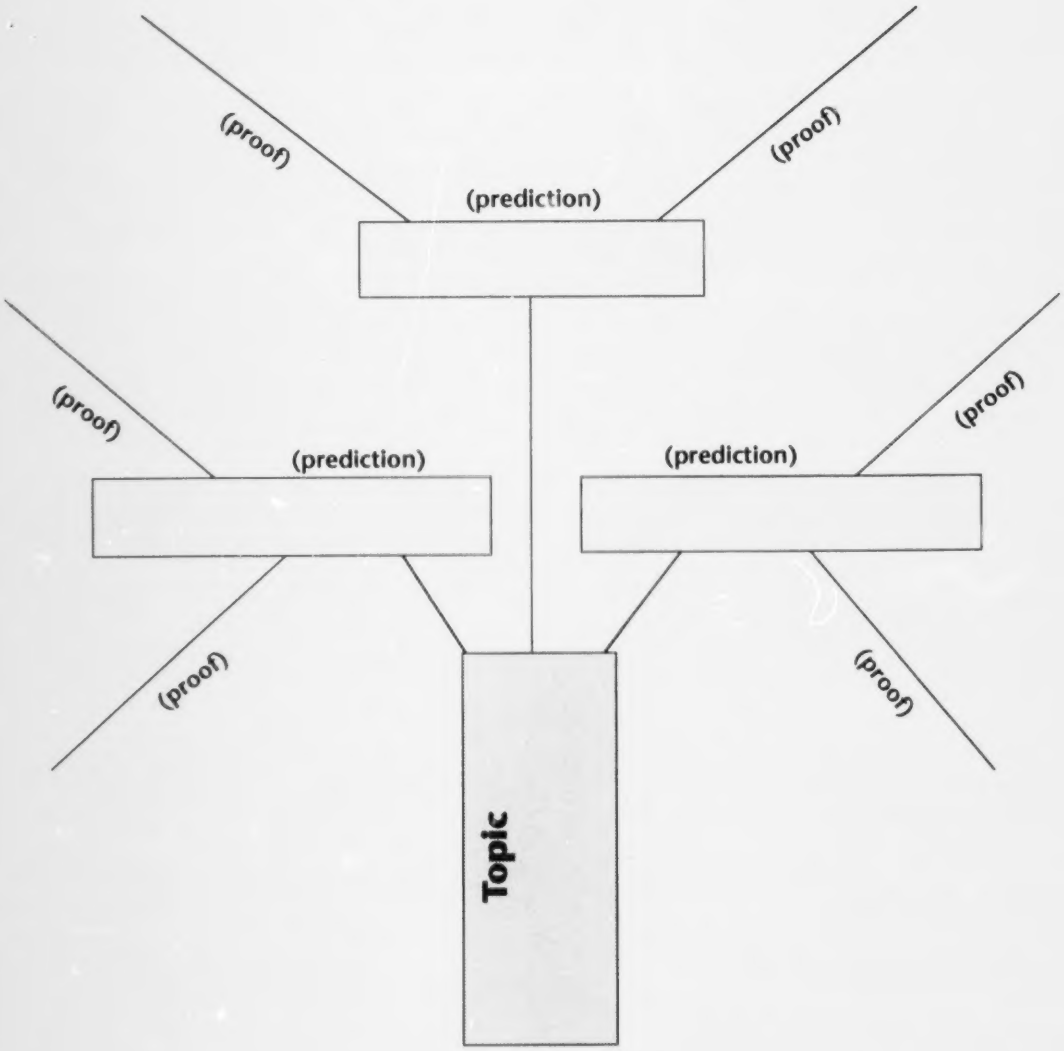
OPTIONAL

- ■ Use coin flips to demonstrate the difference between probable and possible.
- ■ Use science samples for students to observe and make predictions on a prediction tree.
- ■ Set up word problems that require prediction.
- ■ Use a biography for the prediction tree.
- ■ Discuss the benefits of using a prediction tree for various subjects.

APPROPRIATE USE

To develop predicting skills when reading or lab materials allow students to project ahead to outcomes or results.

THE PREDICTION TREE



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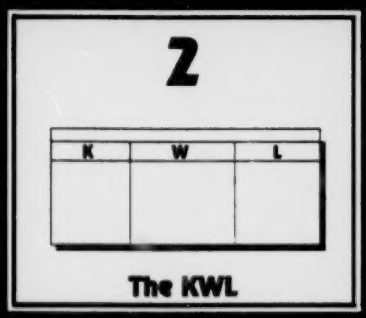
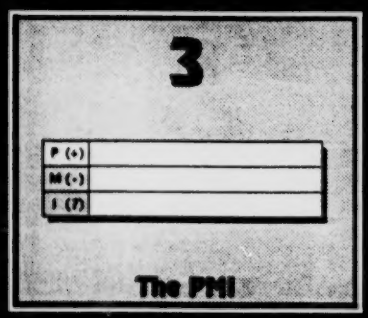
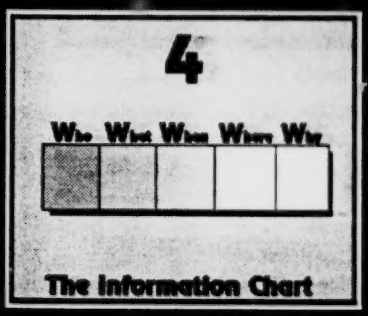
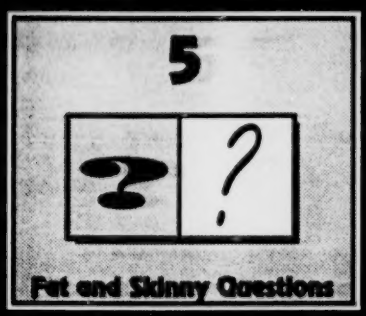
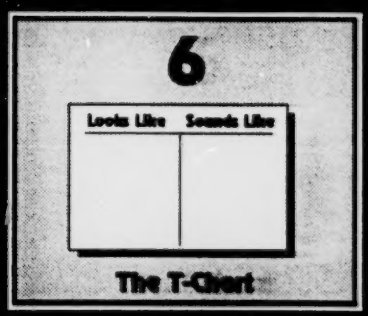
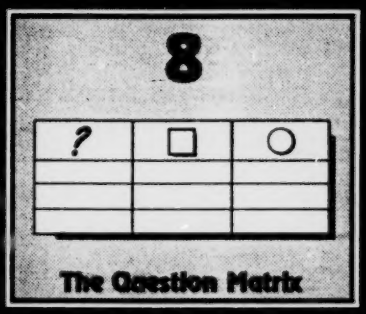


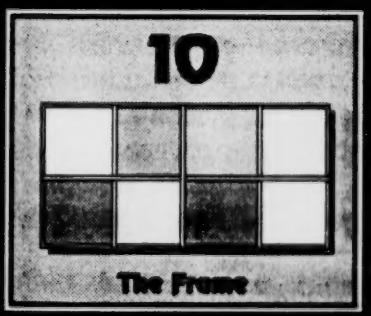


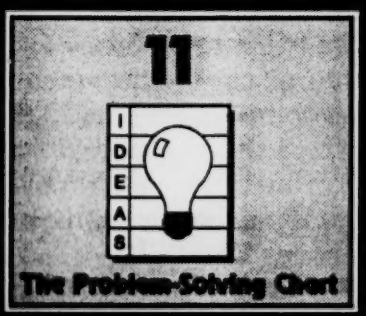












THINK TANK II

CHAPTER

2

Topic: _____		
K	W	L

The KWL

■ **PURPOSE**
To help students identify prior knowledge and experience as a bridge to a new concept, lesson, or unit.

■ **VOCABULARY**
Bridge—to connect ideas; a connection between ideas.
Knowledge—a fact that you can explain.
Want to Know—a desire for deeper or wider understanding of a fact, concept, or topic.
Concept—an idea that you understand and explain.

■ **THINKING SKILLS**
Recalling, Analyzing, Evaluating

INTRODUCTORY LESSON

Draw a KWL chart on the board or overhead. Label each column and explain its use. Tell the students that what they already may *know* about a topic is listed in the *K* column; what they *want* to know is listed in the *W* column. After they have studied the new topic, they will list what they *learned* in the lesson under the *L* column. Explain that the lesson they are going to do now will demonstrate the method.

Write the topic they will use above the KWL chart. For younger students, you might use a concrete topic such as your state's name. (For practice, pick a topic with which they have great familiarity.) For older students, you might select a more abstract (but still familiar) topic, such as a theme or a concept about which they are reading.

Invite students to brainstorm all that they can recall about the topic. Encourage them to remember what they have read from books, magazines, or newspapers, seen on TV or in movies, heard from others, or experienced. Remind the class to follow the DOVE guide-

lines for brainstorming. Help the class by making a poster or handout with the DOVE guidelines (see p. 44). After the list is complete, invite the class to eliminate wrong information, clarify information, or note the most important information.

Topic: Illinois		
K	**W**	**L**
Lake Michigan Chicago/biggest city Abe Lincoln Chicago Bears Corn crops Springfield/capital Prairies Farms		

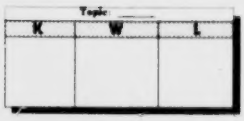
After the class has discussed its *K* list, initiate the *W* list for the topic. What do you want to know about (Illinois)? When first faced with this questioning opportunity, students who have grown up in "one right answer" classrooms may lack motivation and/or the know-how to ask questions. If this proves to be the case, the best option is to teach the students how to ask questions.

Once students understand how to ask questions, encourage them to focus on what they want to know about the topic.

Topic: Illinois		
K	**W**	**L**
Lake Michigan	Who started Chicago?	
Chicago/biggest city	Why is Chicago the windy city?	
Abe Lincoln	When did Lincoln live in Illinois?	
Chicago Bears	How many pro sports players were born in Illinois?	
Corn crops	What other crops does Illinois export?	
Springfield/capital	Why is the capital here?	
Prairies	Do buffalo still live there?	
Farms	Where are Illinois' biggest farms?	

Invite the students to pick what they think are the most important questions to ask about the topic. Plan a strategy to ensure students will have these questions answered before the lesson ends. For instance, you might build the answers into a lecture, assign groups to read material that answers a question, bring in a guest lecturer, show a film with the answers, point out the answers in the textbook, etc.

As a topic review, ask the students to complete the final column, what was learned about the topic. If there are unanswered questions from the *W* column, discuss the information with the class.



ELEMENTARY SCHOOL TOPICS

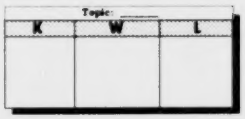
The Wizard of Oz
The Statue of Liberty
Dinosaurs
Pigs
The alphabet
A good neighbor
Your topic list

Topic: Illinois		
K	**W**	**L**
Lake Michigan	Who started Chicago?	
Chicago/biggest city	Why is Chicago the windy city?	the Aldermen talk too much
Abe Lincoln	When did Lincoln live in Illinois?	
Chicago Bears	How many pro sports players were born in Illinois?	
Corn crops	What other crops does Illinois export?	soybeans, alfalfa
Springfield/ capital	Why is the capital here?	
Prairies	Do buffalo still live there?	yes
Farms	Where are Illinois' biggest farms?	in Sangamon County

Ask the students to review how to set up and use a KWL chart. Ask them to explain where they might use a KWL, how it can help them make a bridge for old knowledge to new knowledge, and why they think this bridging is important in their learning.

Before the next lesson in your classroom, assign each student to a trio with an encourager, recorder, and checker. Give each trio a subtopic from the lesson. For instance, an elementary-level topic such as *farm animals* invites subtopics made up of the individual animals. A secondary-level substance-abuse prevention topic such as *drugs* invites subtopics of a variety of substances.

1. Give each trio a copy of a KWL chart.
2. Check that they know the steps for completing the chart.
3. Allow five minutes to brainstorm in the *K* column and five minutes to clarify each idea.
4. Allow five minutes for the trios to generate "want to know items" and record them on the chart copy.
5. Randomly select several trios to share their topics and *W* items. Have each member sign the chart.
6. At the end of the lesson or unit, have each trio complete its "we learned" column. Select several to share their results before everyone signs the chart with which they worked. Collect the completed charts.
7. Repeat the group practice of the KWL with different group assignments. Review the procedures as needed to ensure that all students demonstrate mastery of the correct procedures.

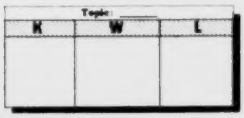


MIDDLE SCHOOL TOPICS

Avonlea
Solar system
Crack
Washington, DC
A friend
Martin Luther King

REVIEW AND TRANSFER

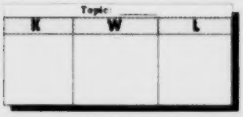
Before you introduce new lessons or units, select the key topic or concept that you want students to understand in the lesson. Review the KWL procedures step by step and the DOVE guidelines (p. 44). It helps to have the procedures and the guidelines posted in a colorful chart for all to see. Use sheets of newsprint on which the students can record the *K* and *W* responses. Post these sheets in the classroom for reference throughout the lesson. As a question from the *W* is answered using the classwork, or a reference is made to *K* items, make clear and explicit connections to the charts.



SECONDARY SCHOOL TOPICS

Photosynthesis
Satire
Integrity
A novel
The American dream

After a few lessons with the KWL chart, conduct classroom discussions about the benefits of the KWL chart. Use your KWL trios to make a benefit list: how does the KWL help them learn the lesson or understand the concept? Call on different trios to share the lists. Note on a master list with the whole class. Make a chart that lists the most agreed-upon benefits of the KWL. Be sure to have them include on the list contexts (other than in school) in which a KWL might be useful.



LIST YOUR OWN TOPIC IDEAS

_____
_____
_____
_____
_____
_____
_____
_____
_____

TEST

To test the students' knowledge of the KWL:

- ❑ Give a vocabulary test.
- ❑ Give a true-false quiz on the benefits.
- ❑ Ask them to sequence the procedures for KWL.
- ❑ Give a word match quiz on DOVE (see p. 44).
- ❑ Give a short reading assignment. Grade on the number of questions listed for *W* and the number of new items listed for *L*.
- ❑ Provide bonus points to students who use KWL without an explicit assignment from you.

OPTIONAL

- Encourage students to keep a KWL log for all free reading or research they do for your class.
- Teach them how to use a KWL chart to analyze or understand a magazine article, book, video, or lab work.
- Invite the students to expand on ideas gathered in the *L* column or to explain why the new *L* was important to the topic or concept.
- Encourage the most skilled students to use chapter headings, titles, or subtitles to frame topics for their KWLs.
- Encourage trios of students to compare and contrast their KWLs and to explain to each other what they learned.

APPROPRIATE USE

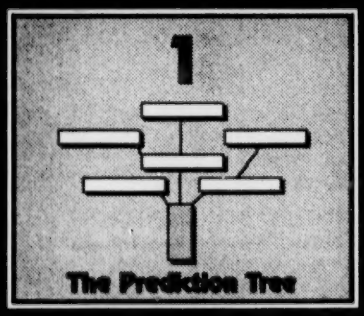
You want students to bridge prior knowledge to a new concept, skill, topic, lesson, unit, or course of study.

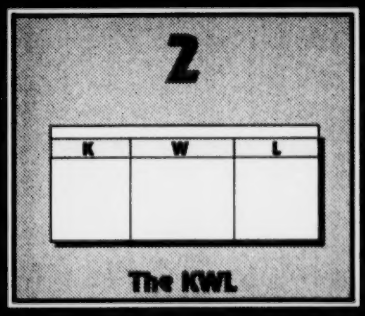
THE KWL

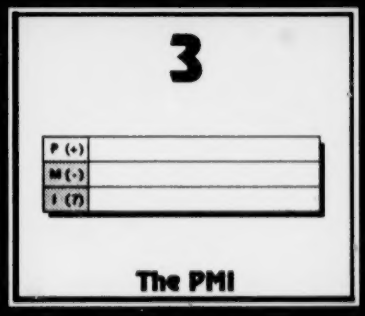
Topic: _____

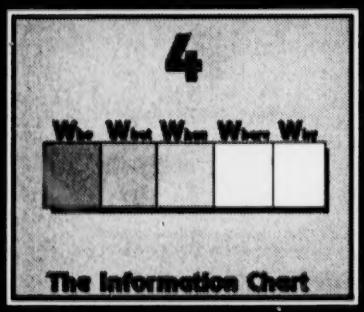
Know	Want to know	Learned

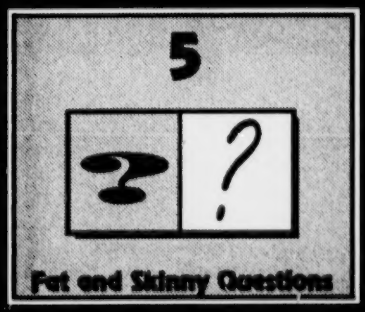
The Cooperative

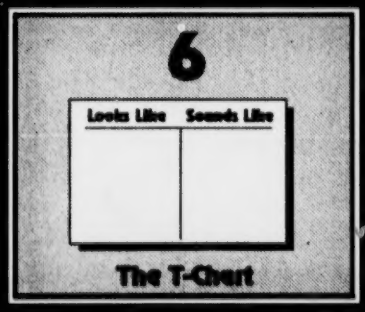


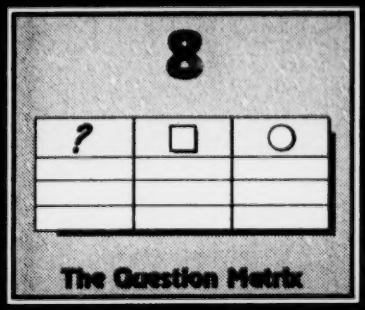


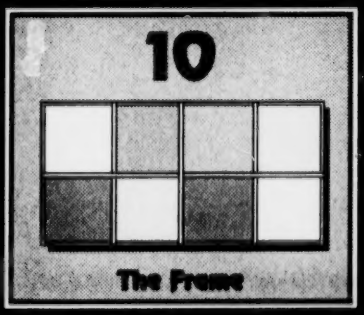


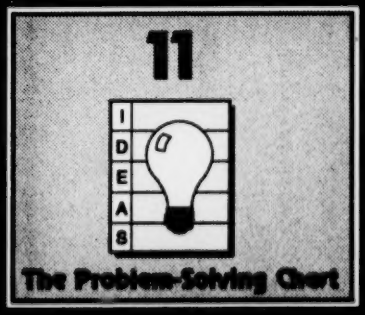


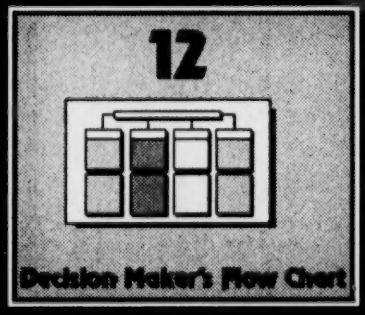












THINK TANK II

CHAPTER

3

P (+)	
M (-)	
I (?)	

The PMI

■ **PURPOSES**
To help students evaluate and extend understanding about facts, concepts, thinking processes, and cooperative interactions.

To encourage students to investigate and examine all sides of an issue.

■ **VOCABULARY**
Plus—a benefit.
Minus—a drawback.
Interesting Question—a question or comment.
Inquiry—the act of investigating or finding out about something.
Evaluate—to weigh, value, judge importance, or assess.
Play Devil's Advocate—to argue for a position whether or not you agree with it, for the sake of argument.

■ **THINKING SKILLS**
Evaluating, Inquiring

INTRODUCTORY LESSON

Draw a PMI frame on the board or overhead. Label each column and explain the term and its use, using the school as the topic.

School Name:

P (+)	Plus
M (-)	Minus
I (?)	Interesting Question

Explain that "plus" comments will show what students like or enjoy about the topic; "minus comments" will show what they dislike; and "interesting questions" will show what they would like to know about the topic or its pluses and minuses. When constructing a PMI, plus answers go in the *P* column, minus answers in the *M* column, and questions in the *I* column. Explain that you are going to demonstrate and that they will have enough practice to become experts in use of PMI.

Above the PMI frame on the board or overhead, write the topic for evaluation. For younger students you might select a familiar topic like "watching TV." For middle-grade students use a demo topic such as "disagreeing with your friends" or "being a cheerleader." For high schoolers, select "going to college" or "working after school."

Once you have a topic, one with which your students are familiar, assign roles for small group work, review the cooperative guidelines, and distribute one blank PMI per trio (see p. 23). Allow the groups three to five minutes for listing the pluses of the topic. Repeat the procedure for the minuses.

After the minus list time is up, give the opportunity for each group to ask the interesting questions. When first faced with the opportunity to ask questions instead of give "right" answers, some students may not know "how" to ask an interesting question or may lack the motivation. In either case, it is best to teach the class how to ask these questions.

Once five or six students show they understand how to ask interesting questions, solicit examples from them. Encourage the groups to start with these ideas. You may also wish to introduce the concept of the "devil's advocate." The devil's advocate asks questions for the "fun of it" or in place of a person not in the group who might ask a "tough" question. One or more students in the small group may play this role. All others understand that the question is not of the role player's choosing.

Being a Cheerleader

P (+)	exercise, hard work, friends, fun, sports, popular, discipline, teamwork, well liked, uniforms, dance, ready for high school
M (-)	hard work, cliché, practice time, snobs, discipline, phony, not a real sport, sexist
I (?)	How much skill does it take? How do they pick cheerleaders? How does cheerleading hurt or help our grades? Why does our class have the best squad? Why aren't there boy cheerleaders for girls' teams?

After each group has finished its question list, invite one plus, one minus, and one question from each group. Encourage the groups to agree on the "best" from each column. Record each *different* response (no duplicates) on the board or overhead until you have an all-class list. Give positive feedback on the samples in each column. Praise the groups for their contributions.

P (+)	
M (-)	
I (?)	

ELEMENTARY SCHOOL TOPICS

Watching TV
Getting a pet
Sleeping over
Older siblings

Check for understanding by asking some students to explain the procedures for each team. If one has difficulty, ask another to build on or fill in the explanation.

After reviewing the procedures, ask students to explain when and where they might use a PMI, how it can help their thinking in school and outside school, and what the advantages of using a PMI are.

P (+)	
M (-)	
I (?)	

MIDDLE SCHOOL TOPICS

Disagreeing with your friends
Roller blades
Going steady
The science test

Before the next lesson in your classroom, assign each student to a new trio. Review the roles, guidelines for cooperative work, and PMI procedures. From the lesson, identify several issues and list them on the board. Invite each trio to select one issue statement for a PMI. For instance, if the lesson is a short story such as "The Most Dangerous Game" (middle or secondary) you might list these PMI issues before reading the story: big game hunting, treating guests well, defending yourself against violence. If the lesson is about history such as Washington at Valley Forge (primary), you might take these issues to PMI after the lesson: Washington should have stayed at Valley Forge; Washington elected to cross the Delaware to Trenton; Washington should have moved south to Virginia.

P (+)	
M (-)	
I (?)	

SECONDARY SCHOOL TOPICS

Going to college
Joining a club
Buying a computer
Studying hard

1. Give each trio a PMI chart.
2. Check that all know the steps to complete the PMI.
3. Allow five minutes per column.
4. Randomly select several recorders to share their PMI charts.
5. Have each member sign the group's chart.
6. Collect the charts and save them for your lesson review.
7. Repeat the group practice use of the PMI until most show a mastery of the procedure.

REVIEW AND TRANSFER

When you are sure most are ready to do an individual PMI, structure an individual task for in-class work. Assign a single issue for all to chart. After individuals have completed their charts, put the students into sharing trios. Have them give positive feedback and encouragement to each other. Give them sample topics for individual at-home assignments. Sample topics for primary reading assignments might focus on the character's behavior; for middle school, reading assignments might focus on the author's point of view; for high school literature, assignments might focus on a choice made by a character, a character's opinions, or how the author ended the plot. Sample topics in science might include a PMI on an ethical position or on how to solve an environmental problem. In math, sample topics might include problem-solving procedures or places to use such procedures.

Repeat PMI assignments for homework at least once a week. Use different subject areas.

TEST

To test the students' knowledge and proficiency with the PMI:

- ❑ Give a vocabulary test.
- ❑ Give a true-false quiz on the purposes of using the PMI.
- ❑ Structure a PMI for the PMI process.
- ❑ Structure a PMI for working in a group. Use quantity and quality criteria with a group grade.
- ❑ Structure a solo PMI for "doing your homework." Use quantity and quality criteria for an individual grade.
- ❑ Provide bonus points to students who do PMIs without assignment by you.

OPTIONAL

- ■ Encourage students to make PMI charts in a journal for free reading or research they do in your class. Brainstorm generic topics or issues they might use as a basis for a PMI. Teach them

how to use a PMI to analyze or understand a book, chapter, article, or TV show.

- Encourage students to exchange completed PMIs and to answer the other's *I*s (interesting questions). If questions require research, schedule time for the groups to find answers before they return the questions and answers to the originating groups.

- Invite groups to PMI how they cooperated in a team task.

- Invite individuals to PMI the thinking or problem-solving processes that they used in a task you assigned. Conduct a class discussion to identify similarities and differences in how individuals solved the problem.

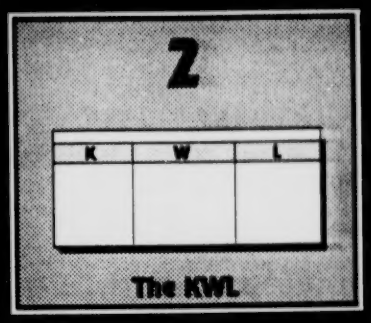
APPROPRIATE USES

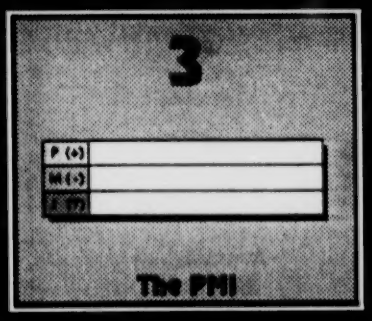
- To evaluate a group or individual task.
- To evaluate the methods used for improving *how* a group worked together.
- To evaluate the methods, procedures, or processes used in a thinking or problem-solving task.
- To encourage critical examination of different points of view.
- To encourage inquiry about a topic.

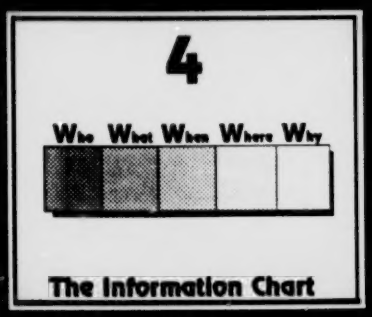
PMI CHART (PLUS/MINUS/INTERESTING QUESTIONS)

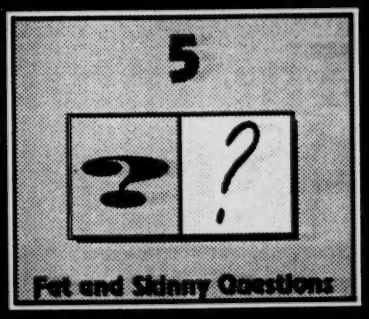
P (+)	
M(-)	
I (?)	

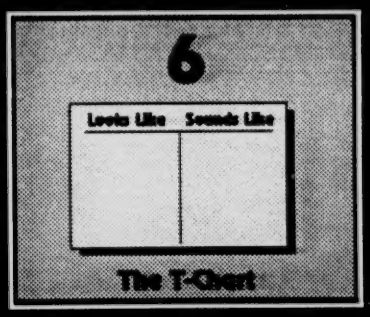
The Cooperative

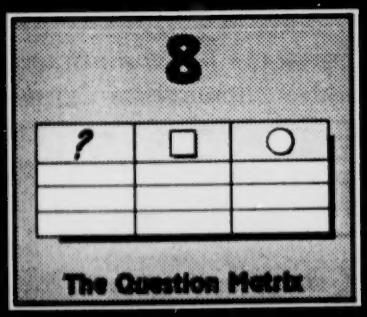


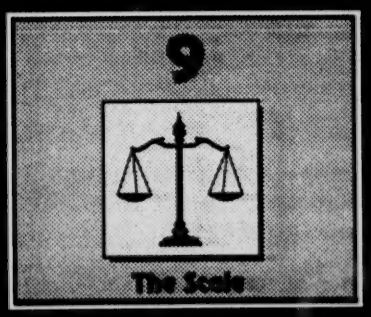


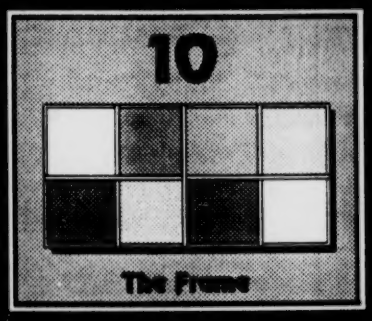


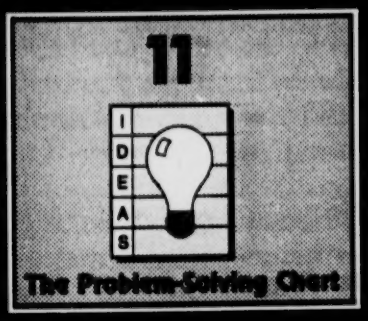


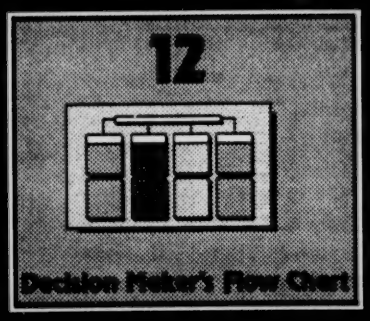










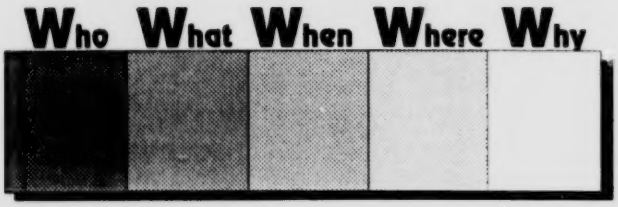


THINK TANK II

BEST COPY AVAILABLE

CHAPTER

4



The Information Chart

■ **PURPOSES**
To teach students how to ask questions that gather information.

To teach students how to summarize information with precision.

■ **VOCABULARY**
Summary—a brief statement giving the main points.
Criteria—rules or standards for making a judgment; tests.

■ **THINKING SKILLS**
Gathering Information, Summarizing, Evaluating by Criteria

INTRODUCTORY LESSON

Draw an information chart on the board or overhead. Label each column and explain its use.

Who	What	When	Where	Why

Give each student a copy of a story such as the *Three Billy Goats Gruff*. First, ask students to tell you who is in the story. List the responses. Repeat the procedures for what (happened)? when? where? and why (did the goats fool the troll)? After each segment is done, ask the students to help you construct a one-sentence *summary* of the data: "Who did what to whom, when, where, and why?" Write the agreed-upon sentence in the summary block.

For younger students, you may need to read the story aloud as they follow along. (For older students, you will need to indicate that you are using the *Billy Goats* story just to demonstrate the procedures for the chart.)

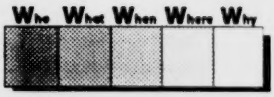
After the demonstrations, check that all understand how to use the chart to gather information. For younger students pick a favorite story to read or a video folktale such as "How the Elephant Got His Trunk." For older students, use a story such as "The Black Stallion." Use the entire class to help you fill in the chart as they did in the introductory sample.

When you feel comfortable with the students' understanding of how to use the chart, assign them to groups of three. Distribute roles, review the cooperative guidelines and chart, and invite the recorder to get newsprint, markers, and a story from the materials table. Have enough short books (primary) or short stories (middle and secondary) available so that each group can select one.

Instruct the group recorders to outline a chart on the newsprint with a heading line for the story title. Review the steps for completing the chart before assigning one person in the group to read the story aloud (softly) as the others listen for who? what? when? where? and why? Let the groups decide whether they want to wait until the end of the story before filling in the chart or fill it in as they go. You may encourage students to use two to five sentences for the summaries. Walk among the groups to assist as needed and to keep the pace of the work as equivalent as possible among the groups.

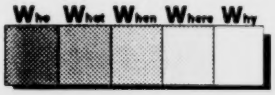
Invite the group members to sign and post the completed charts. Select several groups to explain the charts and read the summaries. After you have given any needed corrective feedback ("This is what I like about your chart: _____. This is how I'd like to improve your chart: _____."), instruct each group to write on the chart one thing it might do to improve its chart. Collect the completed charts.

Repeat the group practice with this chart using other story or biographic material. Review the procedures to ensure that all students learn to use the chart well.



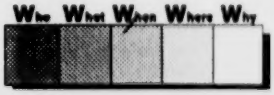
ELEMENTARY SCHOOL TOPICS

Story books
Fables
Myths
TV shows
Cartoons



MIDDLE SCHOOL TOPICS

Short stories
Comic strips
Myths
Biographies
News stories
Magazine stories
History text
Language arts text
Creative writing stories
TV shows
Movies
Plays
Encyclopedia articles



SECONDARY SCHOOL TOPICS

Short stories
Comic strips
Narrative poems
Science text

THE CRITERIA

A good summary—

1. Provides correct information for *all five* questions.
2. Uses the title to select the most important information from each question.
3. Uses all supporting information.
4. Avoids using unnecessary information.

REVIEW AND TRANSFER

Before you extend the practice to more complex material (i.e., news articles, fables, myths, short stories, novels, biographies) with older students, teach the students the criteria for assessing how well they are writing the summaries. Give each group a copy of the criteria.

Give each student a copy of the news story. Read it aloud to the class.

THE NEWS STORY

At Val d'Isere, France, on Saturday, twenty-three-year-old A. J. Kitt of Rochester, N. Y., ended at last the long losing streak suffered by U. S. men's skiers.

With just two months to go before the 1992 Winter Olympics, Kitt scored a downhill win impressive enough to ensure his place in the annals of U. S. men's skiing.

Kitt beat Austria's Leonard Stock by .49 second, becoming the first U. S. man to win an Alpine World Cup event in 224 races during more than seven seasons. The last downhill won by a U. S. man was on March 11, 1984, when Bill Johnson proved himself once again, just a month after his 1984 Olympic success.

"I broke a barrier today, absolutely," Kitt said. Kitt and Johnson are the only U. S. men ever to win downhills during the twenty-six World Cup competitions.

Tommy Moe, not using the Olympic course, was thirteenth in the Val d'Isere downhill. Matt Grosjean was ninth and eleventh in the first two World Cup slaloms, but suffered a knee injury on Thursday during downhill training.

In Santa Catarina, Italy, Julie Parisien, Diann Roffe, and Eva Twardokens, all of the U. S., were sixth, eleventh, and fifteenth, respectively, in the World Cup super giant race.

On the overhead, show one response at a time. Read the response, label it, and write in the reasons for the label. Discuss as needed to clarify the rationale given.

THE RESPONSES

Response	Rate	Rationale
1. In France, U. S. skier A. J. Kitt won a race. It was the first in many years.	UGH! Inadequate	Needs to have "when" and "why" answered. "What" needs clarification.
2. In France, U. S. Olympic skier, A. J. Kitt won the World Cup downhill race. His time was .49 second below the downhill record. His teammate injured his knee.	OK Adequate	1. It uses most important info. 2. Information about teammate is unnecessary. 3. "Where" not specific enough.
3. For the first time in 8 years, a U. S. skier won a downhill title in the World Cup. A. J. Kitt broke the world record by .49 second. His Saturday victory at Val d'Isere, France, was a tune-up for the Olympics.	WOW! Exceptional	Meets all criteria.

After clarifying how the models meet the criteria, encourage groups to use the criteria as they complete charts and summaries in future projects. Maintain groups so that each can work on improving how its members' summaries meet the criteria. When a group completes its chart, invite it (a) to rate itself against the criteria and (b) to explain its self-rating. When you review the work, remember to describe how the group met the criteria and what it must do to move to the next highest level (e.g., "You answered all the questions. To improve, be sure to keep extra information out.").

Mix the type of opportunities you provide for the students to use the chart and the summary.

When you are sure that most students have mastered the chart and have demonstrated the ability to summarize, start individual homework reading assignments with the charts. When students complete the assignments, use the study groups to review the homework against the criteria. Rather than assign students simply to read the text or a story, assign them to read *and* complete the chart and the summary.

EXAMPLE 1: Alice in Wonderland

Who	What	When	Where	Why
Alice	fell down the rabbit hole	she was chasing the rabbit	in Wonderland	she was very curious

EXAMPLE 2: The Scarlet Letter

Who	What	When	Where	Why
Hester Prynne	wore a red "A"	the 17th century	New England	the town made her wear it

Another variation is to assign the reading and then "quiz" students by having them complete the chart at the start of the next class.

TEST

To test the students' knowledge and proficiency with the information chart:

- ❑ Give a vocabulary quiz.
- ❑ Give a quiz on the criteria for summarizing.
- ❑ Instruct students to lay out and label an information chart.
- ❑ Provide a short information-full news article or fable. Instruct them to complete a chart and summary.
- ❑ Give students a completed chart and summary and have them evaluate with the criteria.

OPTIONAL

- Invite a local businessperson, sports figure, airline pilot, doctor, or lawyer to visit the class. Make a large information chart. Allow students to ask the five questions and fill in the chart. On the next day, have student groups prepare and discuss the summaries.

- Identify a person students would like to interview by brainstorming a list (e.g., author, literary character, current newsmaker, historic figure, inventor). Select one, and use the chart to summarize the information.

- Instead of a summary, instruct the students to write a different version of the same story.

APPROPRIATE USES

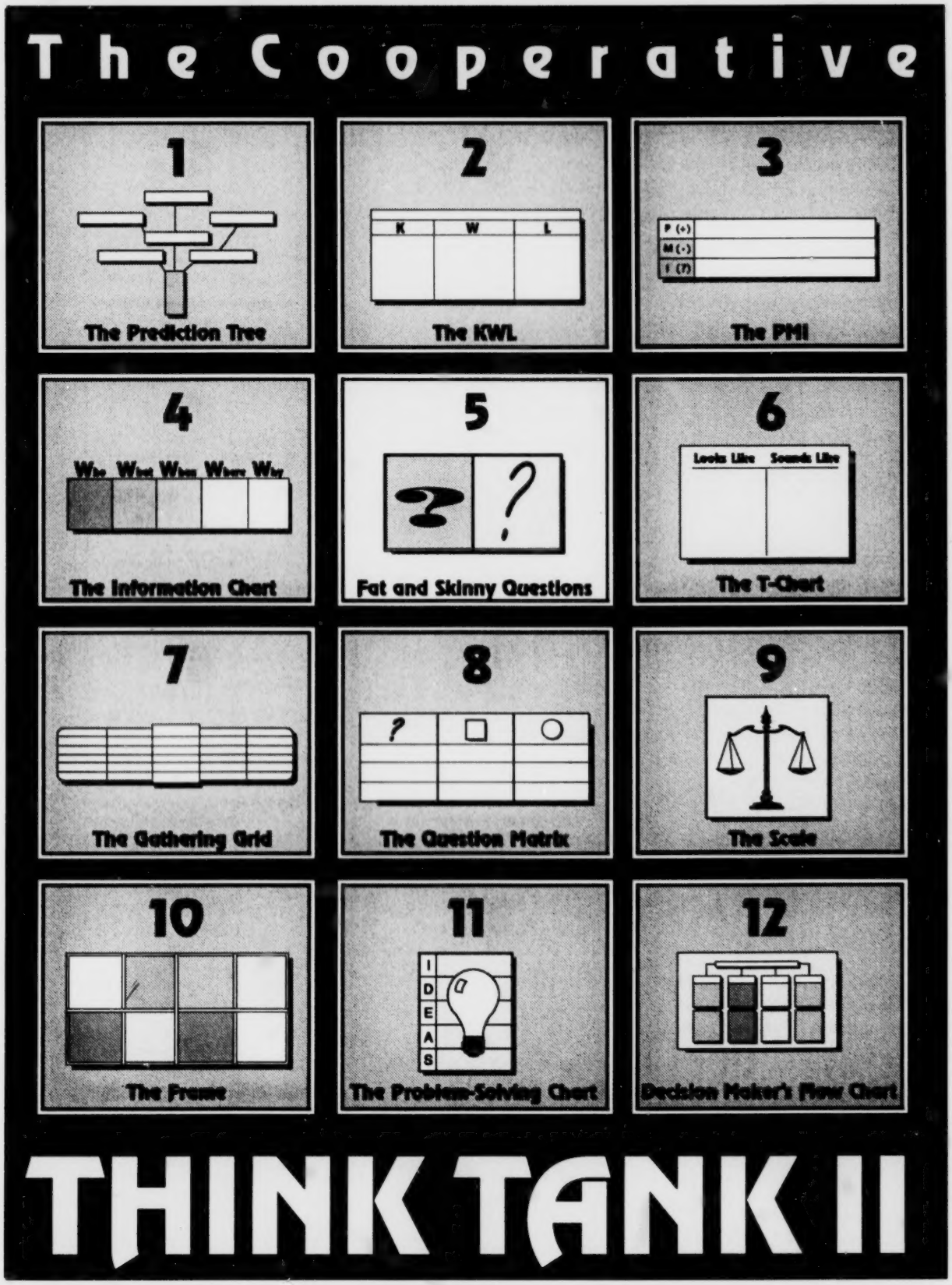
- To sharpen student skills for gathering important information.
- To ensure students have the facts before using information for other purposes.

THE INFORMATION CHART

Topic:

Who	What	When	Where	Why

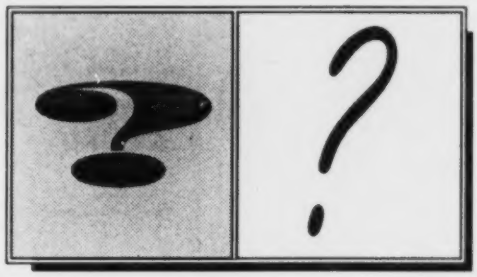
The Cooperative



THINK TANK II

CHAPTER

5



Fat and Skinny Questions

■ **PURPOSE**
To teach students the differences between factual questions and complex thought questions.

■ **VOCABULARY**
Skinny Question—a question that asks for a "yes" or "no" answer or a one- or two-word answer.
Fat Question—an open-ended question that asks for a multi-word thoughtful answer.
Inquiry—the act of investigating or seeking answers.
Investigate—to ask questions and find data to support answers.

■ **THINKING SKILLS**
Inquiring, Investigating

INTRODUCTORY LESSON

On the overhead or board, draw a continuum (spectrum, line graph). Label the "fat" questions and "skinny" questions. Give the definitions of fat and skinny with some examples.

/————————/————————/————————/
Fat Questions Skinny Questions

Skinny:

"Were you good today?"	Yes-No-Maybe
"Who discovered America?"	Columbus-Erikson-No one
"Was Hamlet a hero?"	Yes-No-Who knows?

Fat:
"Explain why you think you were good today."
"Defend the statement: 'No one *discovered* America!'"
"Why do you think Hamlet was or wasn't a hero?"

Show a list of skinny-question words to the students. (A permanent chart posted on the wall or bulletin board will help.)

SKINNY-QUESTION WORDS
What is...?
Who is...?
When did...?
Name...?
Did...?
Don't you agree?
Does...?
Can...?
Will...?
May...?
Is it true...?

Ask a student to mark on the fat–skinny continuum where a question falls and to justify his or her marks. Have the student complete a sample question (e.g., "What is you name?" "Did you drop the dish?") so that it elicits a skinny response. After you have used the examples on the chart, invite the class to suggest other skinny "lead-ins." Add them to the chart.

Next, post the fat-question words.

FAT-QUESTION WORDS
Give three reasons why...
Explain why...
Why do you think...?
Why do you believe...?
In what ways are _____ and _____ alike?
Predict what would happen if...
What if...?

Ask students to mark these cues on the continuum and to complete the question with material you are studying (e.g., "Give three reasons why pollution is harmful." "Predict what would happen if all gasoline engines were banned."). After marking the samples, assign the students to groups of three. Assign roles and review the cooperative guidelines. Instruct each group to identify additional cues for fat questions and to provide a sample for each. Review the results with the entire class. When you are satisfied that most students understand the distinction between fat and skinny questions *and* can give a sample of each, use the groups of three to make up one fat and one skinny question about a story, a current newspaper editorial, a paragraph from your textbook, or a cartoon.

Check for understanding by asking different students to explain the differences between fat and skinny questions and to give samples without the chart.

Before the next lesson in your classroom, assign students to new cooperative trios. Review the group roles, the guidelines for cooperative work, and the differences between fat and skinny questions. Instruct the groups to skim the chapter or story title, the subtitles, pictures, and graphs. After three minutes, instruct the groups to construct three fat and three skinny questions about the reading material. For instance, if the lesson is about Lindbergh, they might find this information:

"The Spirit of St. Louis"
The First Transatlantic Flight
Lindbergh's Dream
The Search for a Plane
The Flight to Paris
Arrival at Last

ELEMENTARY SCHOOL EXAMPLE

The Three Billy Goats Gruff

Skinny: How many billy goats were in the story?

Fat: Explain why the goats wanted to cross the bridge.

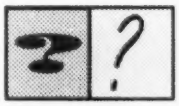
Their questions might include:

FAT?	SKINNY?
Why do you think Lindbergh called his plane "The Spirit of St. Louis"?	Who made the first transatlantic flight?
What difficulties do you think he might have had finding a plane?	What was the name of his plane?
Explain why his arrival in Paris was such a big celebration.	What was his destination?

Invite three to four groups to share the skinny questions and three or four others to share the fat questions. On the board, have students record the key question words on a fat–skinny continuum.

Before the next lesson for which students will use a textbook, assign each student to a trio with recorder, checker, and encourager. Select students to review the responsibilities for each role. Review the DOVE guidelines (p. 44) and distribute newsprint and a marker to each group. Instruct the recorder to draw a fat–skinny continuum across the sheet.

1. Check that groups know sample words to use for fat questions and skinny questions.
2. Invite the checker and the encourager in each group to skim the chapter title, subtitles, pictures, and graphics. Invite the recorder to read the first two paragraphs (five minutes).
3. When all are ready, allow six minutes for the groups to frame three fat and three skinny questions and to write them on the spectrum.
4. Invite groups to exchange the newsprint sheets. The groups will (a) use the text to answer the questions, and (b) check the placement of the questions on the spectrum. (After ten minutes, have the paired groups discuss the questions and answers.)
5. Randomly select several groups to share their fat questions. All group members should sign their group's newsprint before you collect the continua.
6. Repeat the group practice with other text material before you ask the students to apply the technique to literature, news editorials, research books, or magazine articles.



MIDDLE SCHOOL EXAMPLE

The school song

Skinny: What is the name of the school song?

Fat: Why do you think school songs are important?

SECONDARY SCHOOL EXAMPLE

A Tale of Two Cities

Skinny: Who wrote this story?

Fat: Why do you think the author wrote, "These are the best of times?"

REVIEW AND TRANSFER

Before you ask students to use the fat and skinny question continuum with other text chapters, review the definitions, the roles, and the DOVE guidelines. Make a chart on the bulletin board with lists of fat- and skinny-question words. As students find new words, add them to the chart for all to see.

When you are sure that most students can distinguish the extremes of questions in their group work, structure a homework task that follows the procedures. Do the first task in class and pair students to check each other's work. Use the same pairs to check the first

home applications. Start home applications with sample work in the social studies, geography, or reading text. As students demonstrate more skill, assign a research topic in magazines or newspapers.

TEST

To test knowledge and proficiency with fat and skinny questions:

- ❑ Give a vocabulary quiz.
- ❑ Provide examples of each type for them to mark *F* or *S*.
- ❑ Give a one-page magazine article or editorial and list of fat and skinny cues. Have the students make three fat and three skinny questions.

OPTIONAL

- ■ Give each trio a familiar topic. Instruct them to create a "people search" about the topic. The search must have a balanced number of fat and skinny questions. For instance, a search might look like the example "PIGS." (The blanks are signed by the person answering.)

PIGS

Find someone who:

- ■ Can tell the story of the Three Pigs. _____
- ■ Can make up a different ending for the Three Pigs. _____
- ■ Knows a pig joke. _____
- ■ Has read a story about pigs on a Canadian farm. _____
- ■ Knows how to spell "piglet." _____

A high school search might look like this. (Limit one answer per person.)

DNA

Find someone who:

Can explain what a zipper has in common with DNA. _____

Has experienced a spiral staircase or slide. _____

Can describe how a fireman's job is different from that of an assembly line worker. _____

Can make up three words with "base" in them. _____

Knows the difference between a female and male gene. _____

Ate a protein today. _____

- Read about a famous historical figure. Invite the groups to create fat and skinny interview questions. For instance, a primary interview might sound like this.

GEORGE WASHINGTON

Did you really chop down the cherry tree?	(S)
What was your wife's name?	(S)
Where did you live?	(S)
Explain why you left Valley Forge.	(F)
Why did you think Virginia was so beautiful?	(F)

- After you write the questions on the board, have other students label the questions *F* or *S*. Then structure trios to make a role-play interview.

- Adapt the interview to literature or current events and use the questions for a research assignment. For instance, high school students could construct author interviews.

CHAUCER

Why did you write the *Canterbury Tales?*	(F)
Who was your favorite character?	(S)
Explain why your prologue was so important.	(F)

After writing and labeling the questions, the trio might prepare answers based on the reading of secondary sources. After reviewing their answers for thoroughness and accuracy, structure the trios to role-play for the class.

APPROPRIATE USES

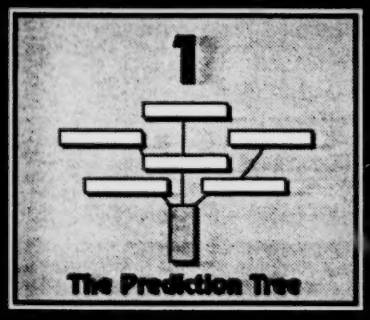
- To foster inquiry by developing the skill to answer open-ended questions.
- To stimulate thinking on a topic for which multiple or complex responses are beneficial.

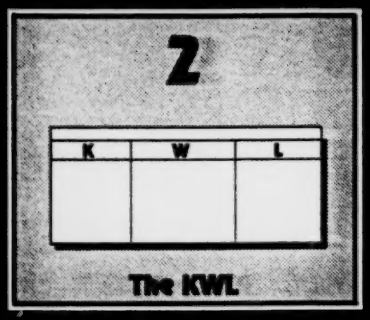
FAT AND SKINNY QUESTIONS

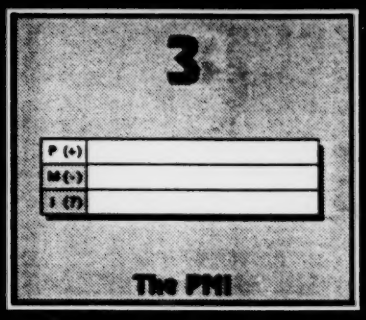
Topic: _____

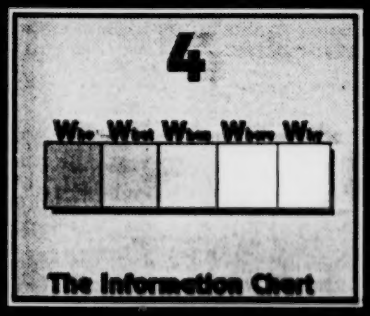
FAT?	SKINNY?

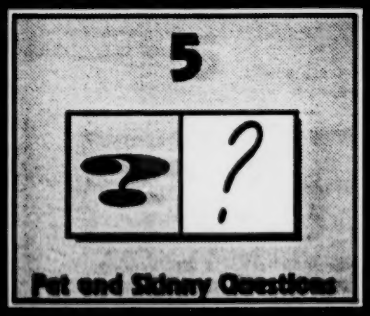
The Cooperative

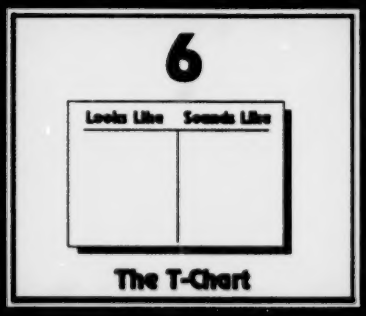


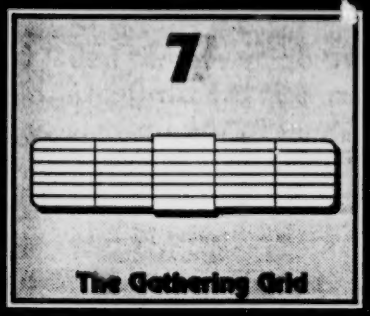


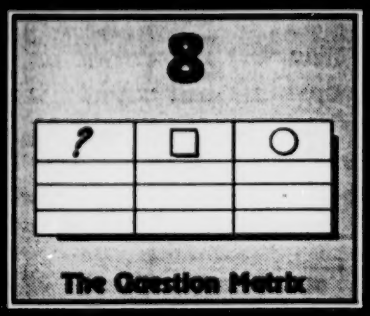


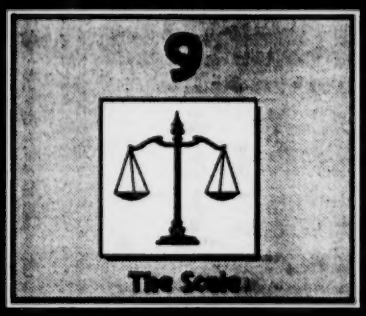


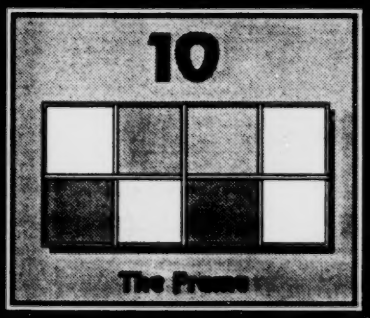


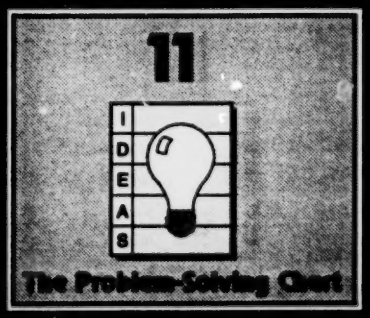


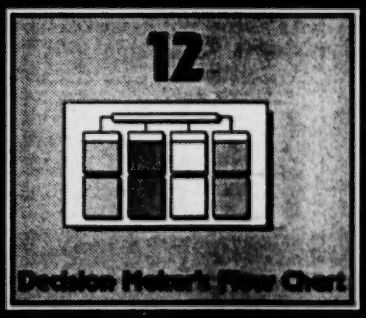








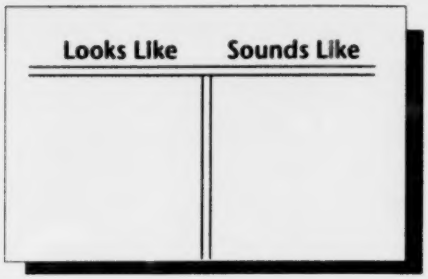




THINK TANK II

CHAPTER

6



The T-Chart

■ **PURPOSES**
To help students clarify concepts or ideas.

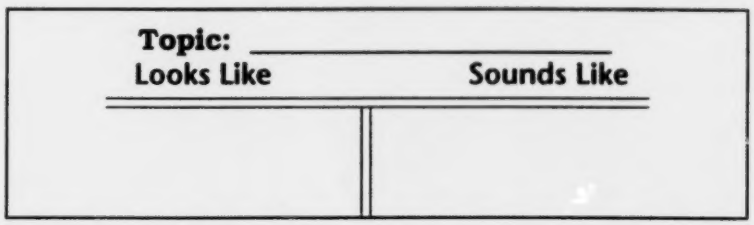
To teach students how to give specific examples.

■ **VOCABULARY**
Clarify—make or become clear or clearer.

■ **THINKING SKILL**
Specifying

INTRODUCTORY LESSON

Draw a T-Chart on the board or overhead. Label its columns and explain its use. Tell the students that what the topic *looks like* is listed in the first column and what the topic *sounds like* is listed in the second column. Explain that the lesson they are now going to do will demonstrate how to use this kind of chart.



Above the T-Chart on the board, write the topic they will use. For younger students, use a concrete topic such as car, truck, or dinosaur. (For the practice pick a topic with which the students are familiar.) For older students, you might select a more abstract (but still familiar) topic such as a math concept (radius) or a science topic (e.g., photosynthesis) about which they are studying.

Invite the students to list all the behaviors or observable characteristics in the "Looks Like" column. Next invite them to list all the sounds or audible characteristics in the "Sounds Like" column. Remind the students to follow the DOVE guidelines (see p. 44) for the listing of words. (Help the class by displaying the guidelines on a poster.) After the lists are completed, invite the class to eliminate inaccurate or less important entries.

Looks Like	Sounds Like

GOOD HEALTH

Looks Like	Sounds Like
rosy cheeks	laughter
smile	pounding feet
muscles	deep breathing
clear skin	heart beat
eye twinkle	
straight back	
hair glow	
strong student	

For additional clarity, you may encourage students to chart the non-example or opposite of the topic or concept.

POOR HEALTH

Looks Like	Sounds Like
paleness	cough
flabby skin	rasping
runny eyes	sniffles
bent over	
weak step	
frown	

Ask the students to review how to set up and use a T-Chart. Check the vocabulary, the reasons for using a T-Chart, and the ways a T-Chart can help them understand a topic.

Before the next lesson or unit, assign each student to a group of three, each with an assigned role. Give each trio a subtopic from the lesson to T-Chart. For instance, a primary social studies unit on "our community" might include subtopics such as firehouse, police

ELEMENTARY SCHOOL EXAMPLE

ENCOURAGEMENT

Looks Like	Sounds Like
thumbs up	"Keep at it!"
pat on back	"Way to go!"
smile	"Great idea!"
nodding head	"Keep trying."
	"You're getting close."

Looks Like	Sounds Like

MIDDLE SCHOOL EXAMPLE

CONSENSUS

Looks Like	Sounds Like
nodding head	"I can live with it."
eye contact	"Good idea."
smile	"That will help us."
attention	"I see your point."

station, or grocery store. A secondary social studies unit on "elections" might include such subtopics as TV ads, conventions, or speeches.

After each trio has its sub-topic, review the DOVE guidelines and the procedures for a T-Chart.

1. Collect a sheet of newsprint and marker from the materials table.
2. Sketch the T-Chart and title the columns.
3. Complete each column.
4. Eliminate incorrect items.

Looks Like	Sounds Like

SECONDARY SCHOOL EXAMPLE

CRITICAL THINKING

Looks Like	Sounds Like
using a matrix using a Venn a list of examples logical proof	fat questions "I wonder if..." "That's the same as..." "I agree because..." "I disagree because..." "That's different from..."

DOVE GUIDELINES

D = Defer judgment; accept others' ideas; avoid criticism and put-downs.

O = Originality is O.K.

V = Variety and Vastness of ideas is a start; explore many ideas; search for the best ideas.

E = Expand by piggybacking on others' ideas; associate; build on others.

Allow the groups ten minutes to complete their charts. Randomly select several groups to share their charts.

Repeat the group practice of the T-Chart with different topics. Review the procedures as needed to ensure that all students demonstrate mastery.

REVIEW AND TRANSFER

Before you introduce a new lesson or unit, identify the key topic or concept on which you will focus instruction. Review the T-Chart procedures, DOVE guidelines, and roles. It helps to have guidelines posted and roles printed on cards for the review. Distribute newsprint and markers to each group of three. Review the purposes and benefits of the T-Chart.

BEST COPY AVAILABLE

Use a group T-Chart strategy for as many lessons as needed to ensure mastery of the procedures.

When you see that most understand the procedures and recognize the benefits, structure an independent assignment with a T-Chart. After you have checked to see that individuals can use the charts in an in-class task in their textbooks, assign a T-Chart with a homework assignment. Use a "fluency" standard (i.e., good = 3 items per column; better = 5 items per column; best = 8 items per column). In the first home assignment, use the same chapter heading or other main idea for all students. For later home assignments, use different subtopics.

TEST

To test the students' knowledge and proficiency with the T-Chart:

- ❑ Give a vocabulary test.
- ❑ Give a true/false test on benefits.
- ❑ Give a word match quiz on DOVE.
- ❑ Ask for a list of T-Chart procedures in sequence.
- ❑ Provide a familiar concept and a T-Chart. Give students guidelines as to how many examples you expect them to provide.

OPTIONAL

- Encourage students to use T-Charts to clarify key ideas in individual reading tasks for different topics.
- Use T-Charts in journal entries before each class discussion.
- Use T-Charts to clarify expected attitudes, values, or social skills (i.e., cooperation, responsibility, caring) that are desired in the classroom. Do T-Charts for the expected behaviors and the undesirable behaviors.
- Do a double T-Chart (Looks Like, Sounds Like, Feels Like) on concepts and themes you are studying in literature or social studies (e.g., loyalty, leadership).
- Make a T-Chart for inductive reasoning. Invite students to read a story, poem, or biography. Label the topic columns "Actions" and "Words."

List major actions taken or words spoken by a character. Under these the students can list conclusions or inferences they draw from these actions and words. You may add another column for "What Others Say" (about the character).

- T-Chart thoughtful dispositions (i.e., persistence in problem solving, creativity) that you want students to develop. Encourage them to list the behavioral indicators (*looks like, sounds like*) for each disposition you select.

APPROPRIATE USES

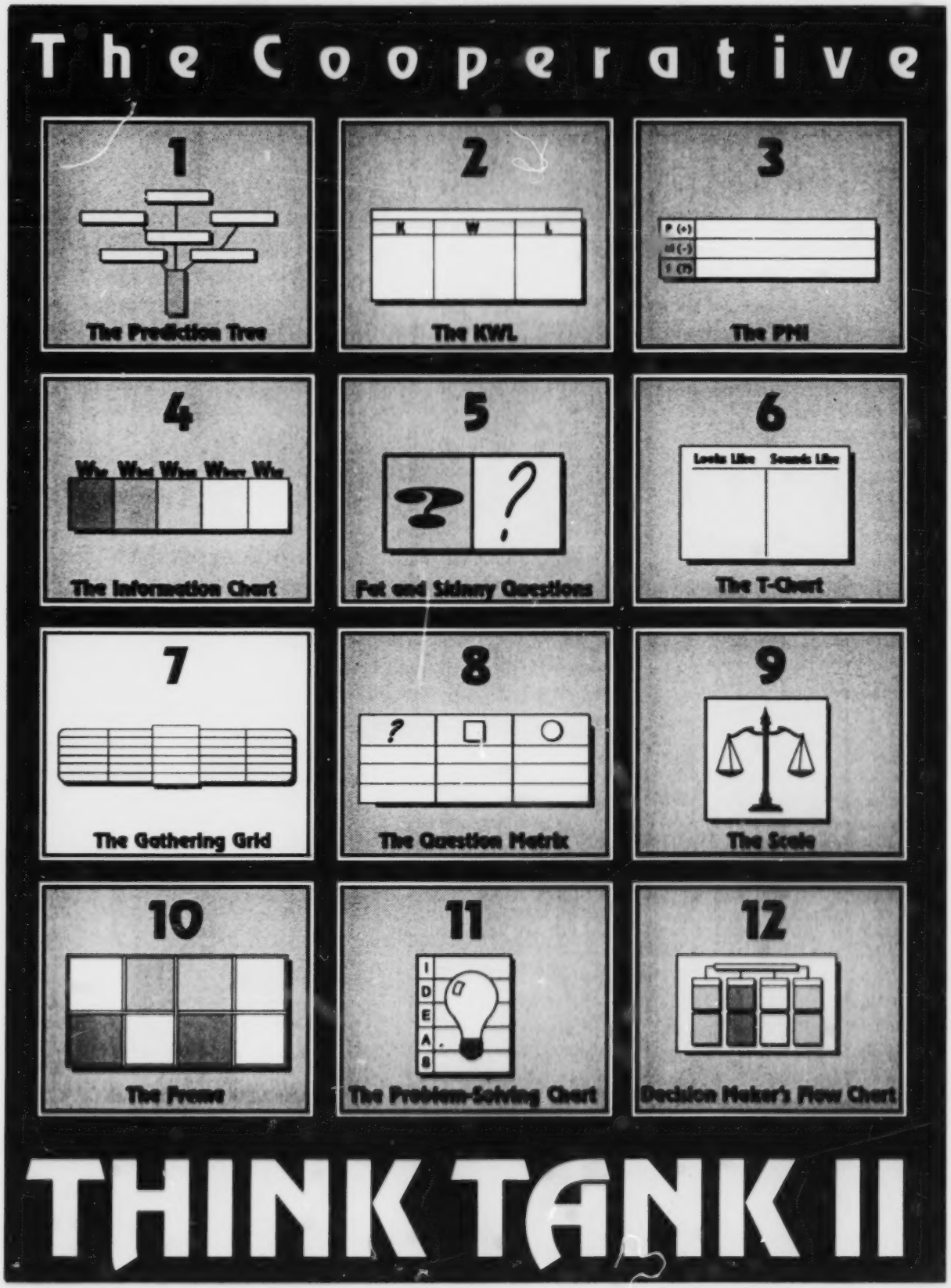
- To help students clarify ideas, topics, or concepts central to a lesson or a unit.
- To collect specific examples for an idea or behavior.

THE T-CHART

Topic: _____

Looks Like	Sounds Like

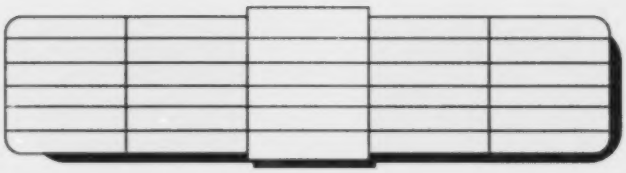
The Cooperative



THINK TANK II

CHAPTER

7



The Gathering Grid

■ **PURPOSE**
To help students make subtle distinctions between similar ideas, people, events, places.

■ **VOCABULARY**
Distinguish—tell apart; see or show the difference in.
Apparent—plain to see; easily understood.
Subtle—fine or tenuous; indistinct.
Infer—find out by reasoning; conclude.

■ **THINKING SKILLS**
Analyzing, Comparing, Contrasting

INTRODUCTORY LESSON

On the overhead or board, illustrate the gathering grid. Review the four key vocabulary words as you explain the purpose for this grid.

You may wish to use this visual explanation to illustrate to upper-grade students how this chart "classifies." Unlike the Venn diagram, which allows random and often unmatched comparisons and contrasts, the grid shows similarities and differences in a very structured format. This grid provides common factors and shows how each sample may be slightly different in one or more attributes.

After you have outlined this sample on the overhead, ask or show students how they can use the chart to write a report or organize a speech.

Let them know there are three outcomes from this lesson: (1) each will learn how to use this grid with different samples, (2) each will demonstrate appropriate use of the grid, and (3) each will learn to write an essay based on the grid (upper grades).

The first step is to gather the information on the grids. To do this, common elements are labeled in the center column. Information for each specific column is then completed. This sample grid on United States presidents illustrates the gathering grid step.

EXAMPLE: PRESIDENTS

BUSH	REAGAN	PRESIDENTS	LINCOLN	WASHINGTON
50	50	states	Kept as is	13 Colonies
Republican	Republican	party	Republican	
Iraq	Grenada	war(s)	Civil	Revolutionary
CIA	Movies	known for	Gettysburg Address	Cherry Tree

Next, the student analyzes the information gathered on the grid and organizes it for a comparison and contrast essay. The left column aligns the information from the grid. The right column shows an alternative model citing actual paragraph sequences.

What all columns have in common (Presidents column)		**Paragraph I** The Presidents Alike
Washington Unique		**Paragraph II** Uniqueness I
Lincoln Unique		**Paragraph III** Uniqueness II
	OR	
Reagan Unique		**Paragraph IV** Uniqueness III
Bush Unique		**Paragraph V** Uniqueness IV
Close with summary of presidents "alike" column		**Conclusion VI** The Presidents Alike

Divide the class into groups of three. Assign and review roles and the cooperative guidelines. Instruct the recorder to obtain newsprint, markers, and tape from the materials table. Show the recorders how to transcribe the grid on a full sheet of newsprint from the overhead sample.

Pick an appropriate and familiar topic for the first practice.

Check for understanding of the grid procedures before having each group take its topic and develop the grid. After students have agreed and signed the finished grid, invite several groups to share their work. Ask each to describe the features, explain what they learned about making a grid, and explain how they worked together.

ELEMENTARY SCHOOL TOPICS

The Three Little Pigs
Rocks
Community helper's methods (i.e., police)
Games
Famous people
Students in the class

If you feel additional practice is needed for grid making, use the same practice sequence with different material for each group. After you see that most groups understand *how* to use the grid. A quick test is to ask one person in each group to explain to others in the group. Or pick several to explain a step or two to the class. Don't always pick those you are sure can do this. Pick those who may have difficulty so you can "coach" the fine points!

When you feel most are "ready," structure a writing task based on the models shown above. Encourage each group to put its ideas together, and then sequence each part, putting the ideas in each part with a paragraph chart.

Using the overhead or board, show the students how to break their grid apart for a clear check of the sequence. Once the group has its paragraph sequence in order, have it construct sentences. Encourage the groups to delay editing (spelling, sentence structure,

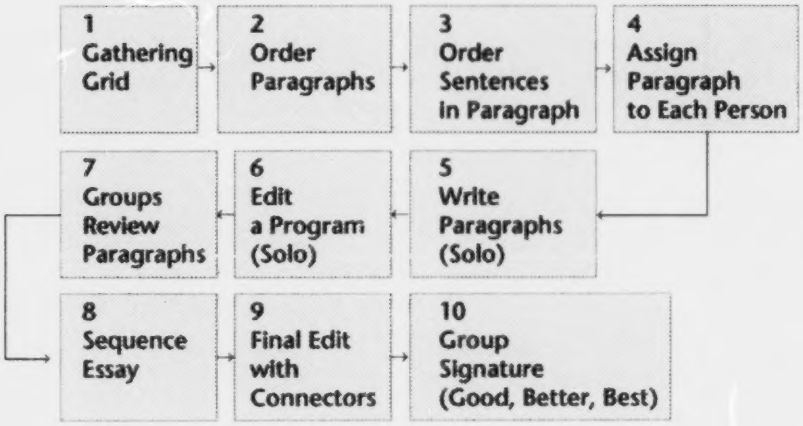
GATHERING GRID: SPORTS

BASEBALL	BASKETBALL	ELEMENTS	FOOTBALL	HOCKEY
9	5	number of players	11	6
4 bases	basketball court	field/court	100-yard field	ice rink
bat, glove, ball	basketball	equipment	football/helmet	stick, puck
runs	baskets 2/1/3	scoring	3 points/7 points	goals
9 innings	4/15 min.	periods	4/15 min.	3 periods

This grid analyzes the elements of four sports. Using this information, students can organize the ideas for paragraphs in preparation for writing.

punctuation) until after the organization is done. At the writing point, each student should try to construct one paragraph. After the students finish this step, have them edit their own paragraphs before the group pieces the paragraphs together, makes a final edit, and signs the final work. The group signature should indicate that this finished paper is either good quality, better quality, or the best. Whichever rating the group agrees upon for its work, the *reasons* for the selected rating should be included.

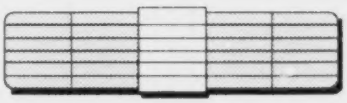
It may help the groups if you display this sequence chart throughout the writing task.



REVIEW AND TRANSFER

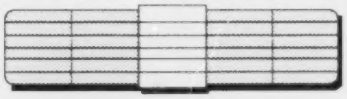
Repeat the entire sequence from the grid to the essay several times over a month. Review with the students "the big picture" as well as the process steps. "The big picture" encompasses (a) the distinction grid, (b) the paragraph chart, (c) the writing steps outlined in the sequence chart, and (d) the final paper.

After several group practices with the process, structure individual practice. (Remember, you promised at the beginning of this unit that you would hold each individual accountable for learning to use the grid for writing an essay.) As each individual goes through the steps alone, use the small groups at appropriate spots



MIDDLE SCHOOL TOPICS

Illegal substances
Books or characters
Women authors
TV shows
Students in class
Nations
Sports



SECONDARY SCHOOL TOPICS

Plays or poems
Sciences
Math problems
Machines
Current events
Artists or musicians
Colleges

(i.e., after the first draft and after the edit) to review each other's work and to offer *constructive* criticism. (This is a good place to teach and model this very valuable social skill. Make a class T-chart for showing what constructive criticism looks and sounds like and what hurtful criticism looks like and sounds like.)

When you feel the students are ready, follow the in-class practice with an individual home assignment. For the first assignment, provide a cover sheet that reviews the entire sequence broken into nightly tasks. For instance, the Monday night assignment might require making the grid; Tuesday night, the paragraph chart; Wednesday night, the rough draft. Each day, the small groups can share samples, discuss problems, and celebrate successes. If you use grades, you may give so many points for each completed step, with the heaviest weight going to the final product.

TEST

To test student knowledge and proficiency of this material:

- ❑ Give a vocabulary quiz.
- ❑ Test knowledge of the process with a flow chart and a mixed list of steps.
- ❑ Test proficiency with the grid by having them fill in a grid using a reading of your choice.

OPTIONAL

YOUNGER CHILDREN

- ■ Instead of an essay, the groups might frame a sequence (see p. 78), make a four-part collage, or draw a four-part picture as the final product. To help them think about their thinking, encourage the students to discuss how their final products show the likeness and/or differences.

MIDDLE SCHOOL STUDENTS

- ■ Spread this unit over several weeks. In the first week, teach use of the grid. In the second, use the groups to work on the paragraphs and the group essays. In the next two weeks, work on the

individual at-home assignments. Use trios for constructive feedback and corrections.

- Use the science text. The goal is to teach students how to classify using a grid. For instance, you might use a chapter that teaches about mushrooms. Use the chapter title as the grid title. Use a topic such as fungi, with mushrooms as the items to distinguish. Enter the like criteria. After the groups follow the procedures to complete the grid, discuss how the grid illustrates "classifying." You may also want to discuss how the grid might help with study of other chapters in the text.
- Brainstorm with students other places to use a grid (library, orchestra, geometry).

SECONDARY SCHOOL STUDENTS

- Instead of a final essay, invite the groups to make an ad or write a song about the topic studied.
- Extend the grid to start the writing of a research paper.
- Brainstorm a list of other courses and topics where they might use the grid sequence (e.g., Calculus—formulae; Geometry—shapes; U. S. History—economic policy; Literature—types of poems; Art History—styles).

APPROPRIATE USES

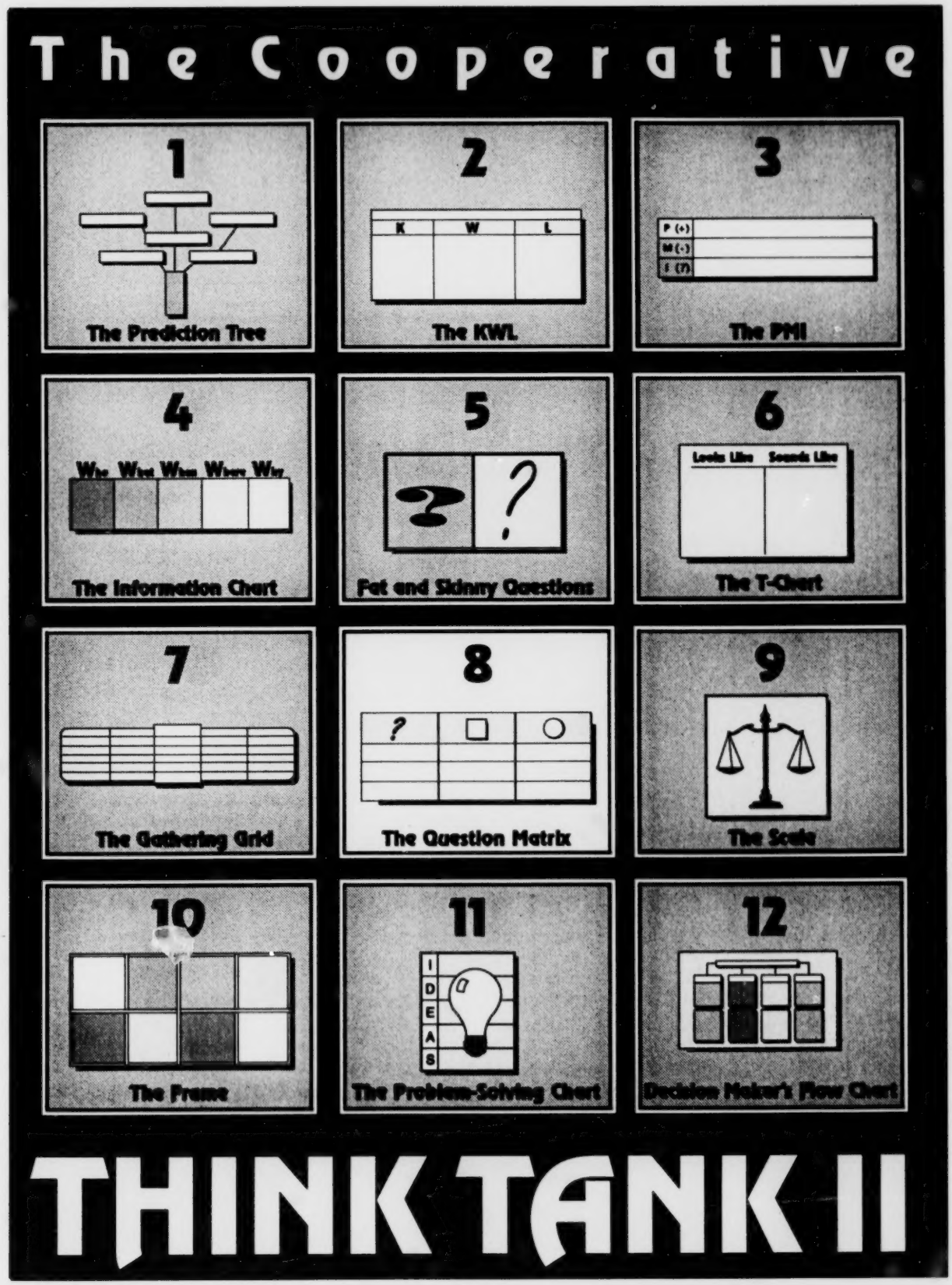
- Can be used in any content area that requires classification skills.
- Making distinctions between facts and concepts that appear to be similar.

THE GATHERING GRID

Topic: _____

Item 1	Item 2	Category	Item 3	Item 4

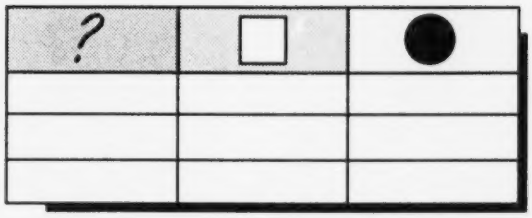
The Cooperative



THINK TANK II

CHAPTER

8



The Question Matrix

■ **PURPOSE**
To help students compare and contrast attributes, qualities, or characteristics.

■ **VOCABULARY**
Attribute—(1) regard as an effect of; think of as caused by; (2) a quality considered as belonging to a person or thing; a characteristic.
Compare—to find out or point out how persons or things are alike.
Contrast—to find out or point out how persons or things are different from each other.

■ **THINKING SKILL**
Analyzing

INTRODUCTORY LESSON

On the board or overhead, display a question matrix. Explain the purpose of the matrix and clarify key vocabulary words. Indicate that the far left column will contain factual or "skinny" questions (teach or review the term, p. 34). In the middle column they will answer the questions about one object or idea. In the right column, they will answer questions about a second object or idea.

QUESTIONS	A	B

After you check for understanding of the model, provide each student with a copy of this paragraph (duplicate a copy for each student).

Michael Jordan lives in Chicago. In 1992 his team, the Chicago Bulls, won the NBA World Championship.

Michael was twenty-seven years old. Michael is well known around Chicago for his seven cars. In Portland he was known for driving a car named after the team and for eating the "breakfast of champions." A good friend of Michael's is Magic Johnson. Magic is four years older than Michael, and lives in L. A. Magic goes to work in an over-the-road vehicle whose name is the same as the Portland basketball team. Magic has played for the Michigan State Spartans, the L. A. Lakers, and the U. S. Olympic Team. He hates Wheaties.

On the overhead, fill in the questions and the names of the two people.

THE QUESTIONS	MICHAEL	MAGIC
Where does each live?		
How old is each today?		
On what team does each play?		
What is each's favorite food?		
How does each get to work?		

Invite the students to read the article. Ask one question at a time, encouraging one respondent to answer for both people. Check that everyone agrees before entering an answer on the matrix. Avoid calling on the same students. Announce that you will wait for everyone to find the answers so no one should raise a hand. Wait for the slowest reader to finish before you request volunteers to answer.

After the chart is done, invite students to study the matrix and decide what each person on the chart has in common and what is unique to each. Wait for everyone to reread and think about the answers before identifying a respondent. Check that all agree on all answers.

COMPARE
_____
_____
_____

CONTRAST
_____
_____
_____

After the lists are done, go back to the vocabulary and build synonym lists for comparing and contrasting.

COMPARE
How alike?
How the same?
What's in common?

CONTRAST
How unalike?
How different?

Check for vocabulary understanding and for steps in using the matrix.

To extend students' ability to compare and contrast, use the matrix with other assignments that allow for noting similarities and differences. *PRIMARY STUDENTS:* use characters from two favorite stories, TV shows, or other familiar material in the classroom such as pets, activity centers, or games. To start, use questions that are built on who? what? when? where? how? why? *MIDDLE SCHOOL STUDENTS:* use historic figures, cultures, important geographic locations, types of word problems, animal families, literary characters. *HIGH SCHOOL STUDENTS:* use the matrix to compare or contrast methods for algebra problems, types of literature, economic practices, or literary characters,

ethical practices, or community values. In addition to examining the facts in reading material, older students might use the matrix as a review tool.

ELEMENTARY SAMPLE: TWO KIDS IN CLASS

	Tomas	Maria
What is the full name of each?		
What is the hair color of each?		
Where does each live?		
How does each get to school?		

MIDDLE SCHOOL SAMPLE: TWO COUNTRIES

	Mexico	Canada
Who are the natives?		
What Europeans first settled?		
What are the chief products today?		
How does the economy of each compare?		

SECONDARY SCHOOL SAMPLE: HEROES

	Hamlet	Macbeth
What was the rank of each?		
Who was the enemy?		
How did he die?		
Where was his home?		
Why did he die?		
Who killed him?		

After students complete the matrix, remember to construct the compare-contrast lists and to review the procedures and vocabulary. As students become more proficient in using the matrix, you might add, as closure, class discussions of other topics from different content areas where the matrix would work well or class discussions of the benefits of using a matrix.

?	□	●

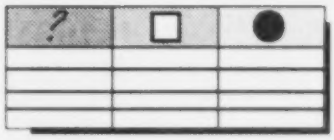
ELEMENTARY SCHOOL TOPICS

Story characters
TV shows
Pets
Families
Collections
Games

REVIEW AND TRANSFER

When you feel comfortable with the ability of your students to use the matrix, divide the class into groups of three. To reinforce comparing and contrasting, let the students select their own groups according to a criterion you provide (e.g., everyone in the group must wear a common color). Assign three roles (e.g. recorder, checker, and encourager), and review the responsibilities of each role. Invite the recorder to pick up the newsprint, markers, and reading material from the materials table. Put your matrix questions on the overhead and review the task.

After the groups are done (monitor so you can keep slower groups up to speed), form groups of six to review the matrices. Moderate disagreements, and then have the groups of six agree on the compare-contrast lists. Have all students sign the matrices and lists they worked on before you collect the finished work. Close by reviewing the work and checking how well the groups worked together. For this check, reinforce comparison making by asking students to comment on the similarities and differences between working in a trio and working in a group of six. List the responses on the board or overhead.

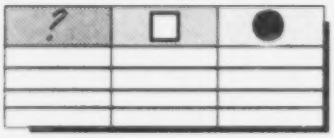


MIDDLE SCHOOL TOPICS

Historic figures
Sports
Cultures
Animals
Characters

To vary the task, begin by asking each trio to construct the chart for the reading task. What questions? What items, people, places, or ideas to compare? Review the questions before having each trio exchange its matrix with another group. After the receiving group has filled out the matrix, the originators will take back the completed matrices and check for accuracy.

After you have observed that most students can do the matrix-matching task in group work, structure individual assignments. Use reading materials of varying difficulty to allow for the range of reading abilities among your students. After each student completes his or her matrix, assign the students to their regular trios. Each group will review its members' matrices, looking for accuracy of answers and making needed corrections. Monitor the groups to help resolve disagreements.



SECONDARY SCHOOL TOPICS

Problem-solving strategies
Economics
Government
Leaders
Ethics
Literary style

Redivide each large group into subgroups of three, again with mixed reading ability and motivation, and distribute a reading task (of appropriate difficulty level) and a matrix to each student. Note that each team will earn points by the number of correct answers totaled from the matrices (which they do at home), make random checks for answers (for individual accountability), and make the group compare-contrast lists (which they will construct in class the next day). Allow time at the end of this class period for trios to encourage each other and to check that everyone

understands how to do the task. (You may also use this as a repeat activity so that large groups acquire points over a large period such as a week or month.)

On the next day, begin the competition with a random oral check (draw names from a hat) of two members from each group. Record each correct answer for the large group score. Next, structure the comparing task in the small groups. Use newsprint so that you can easily mark correct answers. Assign one or two students from each group to tabulate another group's acceptable answers and cheer the results. Monitor disagreements.

Watch out! Some students get carried away with competition. They put down students with wrong answers, jeer, and criticize. There are several ways to control this:

1. Take away team points for discouraging remarks (as many points per occurrence as needed to make the point). Be sure you set the procedure before the competition. You are the umpire. Once points are removed, there is no argument, pouting, etc.

2. Give bonus points for any encouragement and support you observe.

3. Review the DOVE guidelines before the assignment starts.

4. Discuss ways small and large groups can coach each other.

   a. get homework done
   b. remember answers for the oral quiz
   c. make the similarity lists

5. Teach or review with a T-chart the behaviors that go with encouragement (What does it look like? Sound like?).

DOVE GUIDELINES

D = Defer judgment; accept others' ideas; avoid criticism and put-downs.

O = Originality is O.K.

V = Variety and Vastness of ideas is a start; explore many ideas; search for the best ideas.

E = Expand by piggybacking on others' ideas; associate; build on others.

6. Build teamwork by having each large team come up with a positive and appropriate name, cheers, rap songs, slogans, logos, or mottos. Remind teams that within the team you expect to see cooperation, encouragement, and support. Between teams they can be competitive but not negative.

7. Use the acronym CARE to teach appropriate competition.

   C = Control negative comments
   A = Assess the impact of hurtful words
   R = Respect others' feelings
   E = Energy for your team's work

TEST

To evaluate knowledge and proficiency with the matrix:

- ❑ Give a vocabulary quiz.
- ❑ Give a true-false test on the steps for using a matrix.
- ❑ Provide a matrix with questions for accompanying reading material.

OPTIONAL

- Take the class to a play or movie. Use a matrix to compare/contrast the performance with the print version.
- Make an evaluation matrix for use with TV shows; replace the question column with criteria such as strong characters, clear plot, exciting story line, etc.
- Use paintings or sculptures by the same artist for an attribute matrix. Replace the questions with attributes of a specific artistic school.
- Use a matrix to contrast a rival school.

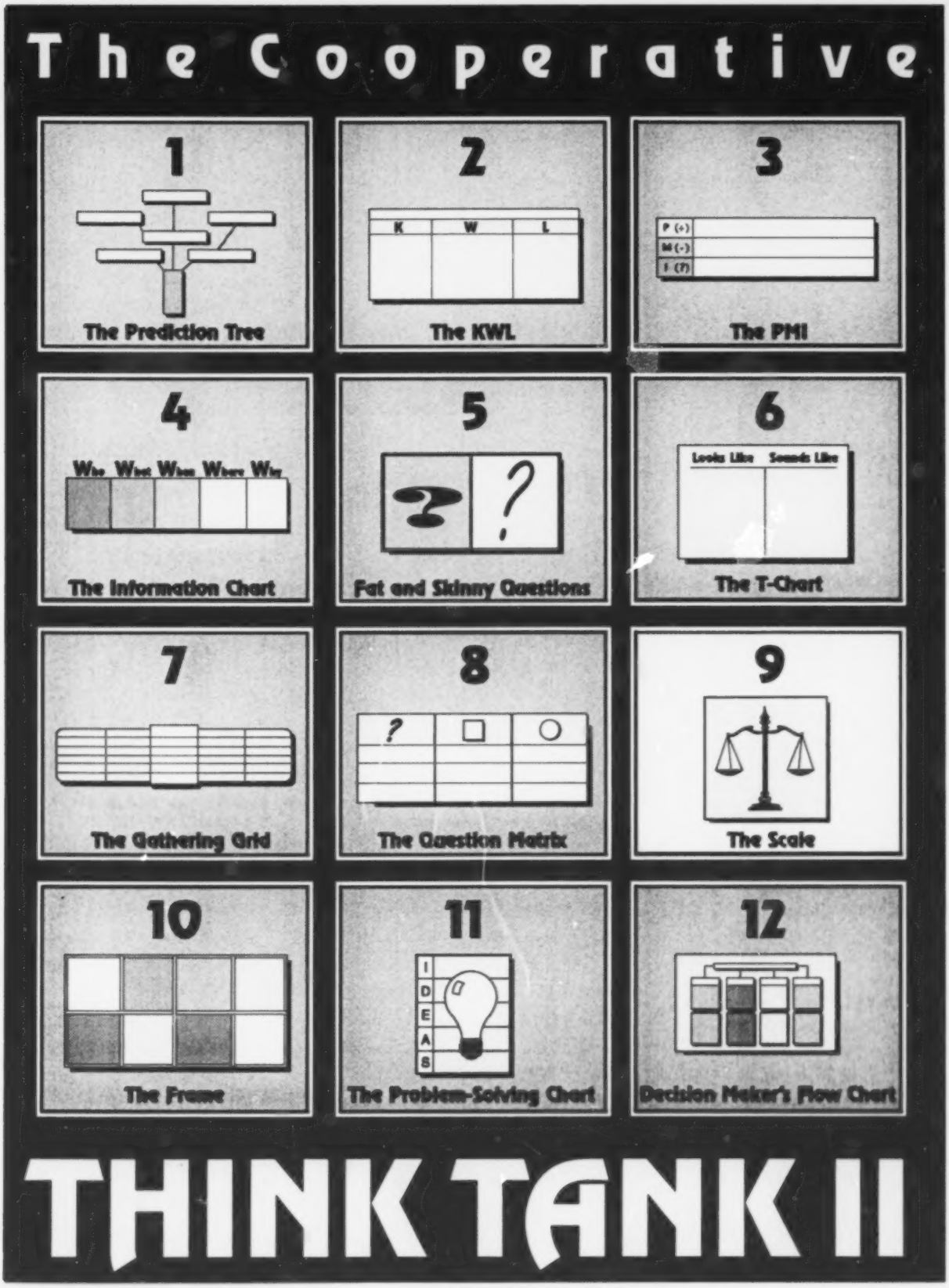
APPROPRIATE USES

- Comparing/contrasting specific objects that are similar/different.
- Make a situation matrix. Replace the question column with personal dispositions of characters in fiction or history (i.e., thoughtful, caring, brave). In the column, students enter situations in which the person displayed the disposition or characteristic.

THE QUESTION MATRIX

QUESTIONS	OBJECT I	OBJECT II

The Cooperative



THINK TANK II

CHAPTER

9

The Scale

■ **PURPOSE**
To weigh, evaluate, or make balanced judgments about facts, ideas, or values.

■ **VOCABULARY**
Weigh—to determine or decide importance or value based on a pre-set standard.
Fact—something that is known to be true.
Concept—a notion or idea.
Value—an idea to which you give certain importance.
Standard—a rule or principle that is used as a basis for making a judgment.

■ **THINKING SKILLS**
Analyzing, Evaluating

INTRODUCTORY LESSON

Draw or show a picture of a scale. Label the scale and ask students to tell you what they know about it. If the students have no prior knowledge, draw out how modern scales look, when scales are used (trucks on highways, meat packing, butchers and vegetable clerks in the supermarket, etc.). You might make a homework assignment for students to go to the grocery store and sketch three or more scales found there.

Above the scales you started with, write the topic they will use for this introduction. For younger students, you might use a simple idea with which they are familiar, such as winter and summer. In the "criterion" blank write the criterion they will use to weigh the two (e.g. the most fun season, the most beautiful season). For older students, you might select a more complex but still familiar topic such as social studies/history, math/science, MTV/CNN, heavy metal/jazz, or football/basketball. Whichever pair you select for the demonstration, be sure to identify the criterion *before* the task begins.

Topic: _____

Item 1 Item 2

Criterion:

Invite students to brainstorm all the reasons to support selection of both items. Encourage them to think about as many possibilities as they can. The only restriction at this step is to follow the DOVE guidelines. After the lists are done, invite the class to clarify and explain ideas on the lists. Using majority vote, the class may eliminate any item that does not fit the criterion.

DOVE GUIDELINES

D = Defer judgment; accept others' ideas; avoid criticism and put-downs.

O = Originality is O.K.

V = Variety and Vastness of ideas is a start; explore many ideas; search for the best ideas.

E = Expand by piggybacking on others' ideas; associate; build on others.

Topic: Seasons

WINTER **SUMMER**

sharp outlines
snow blanket
winter wonderland
quiet
snowballs

many colors
green and fresh
flowers
gardens
shade
vegetables

Criterion: Most beautiful

After the class has removed the items that do not belong, it can weigh the evidence. For instance, with the *most beautiful* criterion, you may want to use *how many* items as the way to select which season best meets the standard. Or you might use *how often* in the season the item is present or *how strongly* individuals feel about the items. For the *how many* criteria use math. Count the items accepted by the class and

identify the difference between the seasons. For *how often* multiply the number of items per season and multiply the number of days in *your* scale before taking the difference.

For *how strongly*, have students vote on each list. Let each student give 0–5 points for each season. Total the season votes.

After the vote, review the vocabulary and procedures for weighing. Use a poster or overhead to list the sequence of procedures. Discuss and clarify as needed with other sample topics.

1. Weigh topics selected.
2. Evaluate on a standard.
3. Include all possible answers.
4. Get rid of ideas that do not fit.
5. Help selection with criterion.
6. Take the best idea.

Before the next lesson, assign each student to a mixed-ability trio. Assign each member a role: encourager, recorder, and checker. Give each trio a list of topics.

Indicate that this task will occur in cooperative groups. On the board, indicate the criteria they will use to weigh the success of their teams:

1. The team followed the six steps (above).
2. All members did their jobs.
3. All members listened, clarified, and followed the DOVE guidelines.
4. Members contributed to the final product.

After each trio has selected its topic, it must agree on the subtopics or issues to weigh and the standards it will use. Give each team a large sheet of newsprint and markers. You want to see their work as you walk among the groups and encourage listening, clarifying, and the following of DOVE. If you want, require the teams to check with you as soon as these two agreements are set.

ELEMENTARY SCHOOL TOPICS

School subjects
Seasons
Holidays
Pets
Dangers
Historic places
Vacation spots

MIDDLE SCHOOL TOPICS

Historic figures
Authors
TV shows
Literature types
Places to visit
Political parties
Ways to say "NO"
Career choices

In the next step, the teams will brainstorm the items to list on each side of the scale. The recorders may write the brainstormed lists on a small piece of paper and transfer only those items voted to be O.K. in each column.

Finally, each team will select its criteria for weighing each column. The recorders should write the criterion on the newsprint. Finally, the team will vote as it considers the criterion and specific evidence it has gathered.

After each team completes the weigh task, give members this worksheet to finish and attach to their weigh chart. Clarify that you want to see at least one reason or fact for each scale.

Encourage groups to be positive and honest as they rate their cooperation. Pointing fingers, blaming, and putting down won't help. When giving evidence to support the scale rating, the groups should find what members did to earn that score, not what they did to keep from getting a higher score. The final signature

SECONDARY SCHOOL TOPICS

Literary characters
Books
Jobs
Colleges
Places to live
Careers
Aspirations
Success

Topic: Pets

CATS
purr
soft
claws
meow

DOGS
bark
growl
bite
fetch

Criterion: Most friendly

Topic: Media

RADIO
auditory
need to use imagination
not that many programs

TELEVISION
visual
lots of ads
addictive?
bad for eyes

Criterion: Least harmful to kids

Group Name _____ Date _____

Topic _____

1. Our team followed the steps.

NOT YET... OK WOW!

Reasons for rating spot:

2. All did assigned jobs.

NOT YET... OK WOW!

Reasons for rating spot:

3. All listened, clarified, and followed DOVE.

NOT YET... OK WOW!

Reasons for rating spot:

4. All contributed.

NOT YET... OK WOW!

Reasons for rating spot:

Signatures _____

_____

_____

indicates the signer *agrees* with all responses on the evaluation sheet.

Repeat use of the scale with material from student textbooks. Before reading the text, set up the scale. Invite students to look for evidence in the text to balance out two points of view. For instance, in literature, make the topic into a statement that could be answered "Yes" or "No." Mystery stories lend themselves to a strategy in which students pick two possible

answers to the mystery. As they read they look for clues to support each possibility.

REVIEW AND TRANSFER

Before you introduce new lessons appropriate to the scale, review the weigh chart and the DOVE guidelines. Assign the teams and provide the newsprint and markers. Next pick the topic or topic options. As your class becomes more at ease with the weigh procedures in the test, you can increase the challenge. Challenge tasks may require teams to use an encyclopedia or other resource materials, biographies or novels, magazine or newspaper articles, or interviews.

After several lessons with the weigh scale, use the assessment worksheets to lead a discussion of the benefits of the scale. Use your teams to make a benefit-drawback scale. Under "benefits," the teams will list how the scale helps them learn the content and/or work as a team. After doing the same for drawbacks, call on different trios to share their ideas. Make a class scale with unduplicated items in each list.

When you feel comfortable that some understand the procedures, assign an independent research task with the weigh chart, to be done in the classroom or media center. Encourage these students to work alone, or, if they choose, in a pair or trio at the same time that you regroup the rest of the class for additional guided practice. After individuals have demonstrated ability to use the scale independently in the classroom, you can encourage more complex, out-of-classroom independent work.

Groups or individuals should continue to assess their scale teamwork. If students progress to individual applications, adjust the assessment worksheet.

TEST

To test the students' knowledge:

- ❑ Give a vocabulary test.
- ❑ Give a true-false quiz on the benefits.
- ❑ Make a matching column quiz.

To check a student's skill:

- ❑ Provide a short reading assignment on a scale with subtopics and standards provided. Instruct the student to complete the scale.
- ❑ Provide bonus points for students who use the weigh scale without assignment from you.
- ❑ Assign a sequence of tasks over a three-week period. Instruct students to work together or alone in constructing a scale for each task. Collect tasks in a portfolio. At the end of the time period, instruct students to pick the best scale made and evaluate its quality by criteria you provide.

OPTIONAL

- Encourage your students to use the scale with independent reading or research in *all* classes and subjects. Provide a journal so they can review the scales each month. At the end of a semester, have the students evaluate the interdisciplinary uses.

- Link the scales to a quarterly theme. For instance, in the primary grades, you might use *caring about each other* as a theme. As students read in social studies, language arts, and science, identify ways that "caring for others" is shown. Once a week, use the scale to evaluate the different ways identified. Use a similar approach to link themes such as social responsibility, ecological responsibility, or respect for others in the middle grades.

APPROPRIATE USES

- Weigh prior knowledge about a new topic or unit. Survey the class and use the scale to identify the most important information.
- Weigh points of view by historic figures (e.g., Jefferson and Hamilton, Lincoln and Douglas), literary characters (e.g., Macbeth and Macduff) authors from a period (e.g., Brontë and Keats), scientific views (e.g., creationism and evolution), political beliefs (Democratic and Republican), or current issues.
- Weigh costs and benefits for solving a classroom problem.

THE SCALE

Topic: _____

Item 1

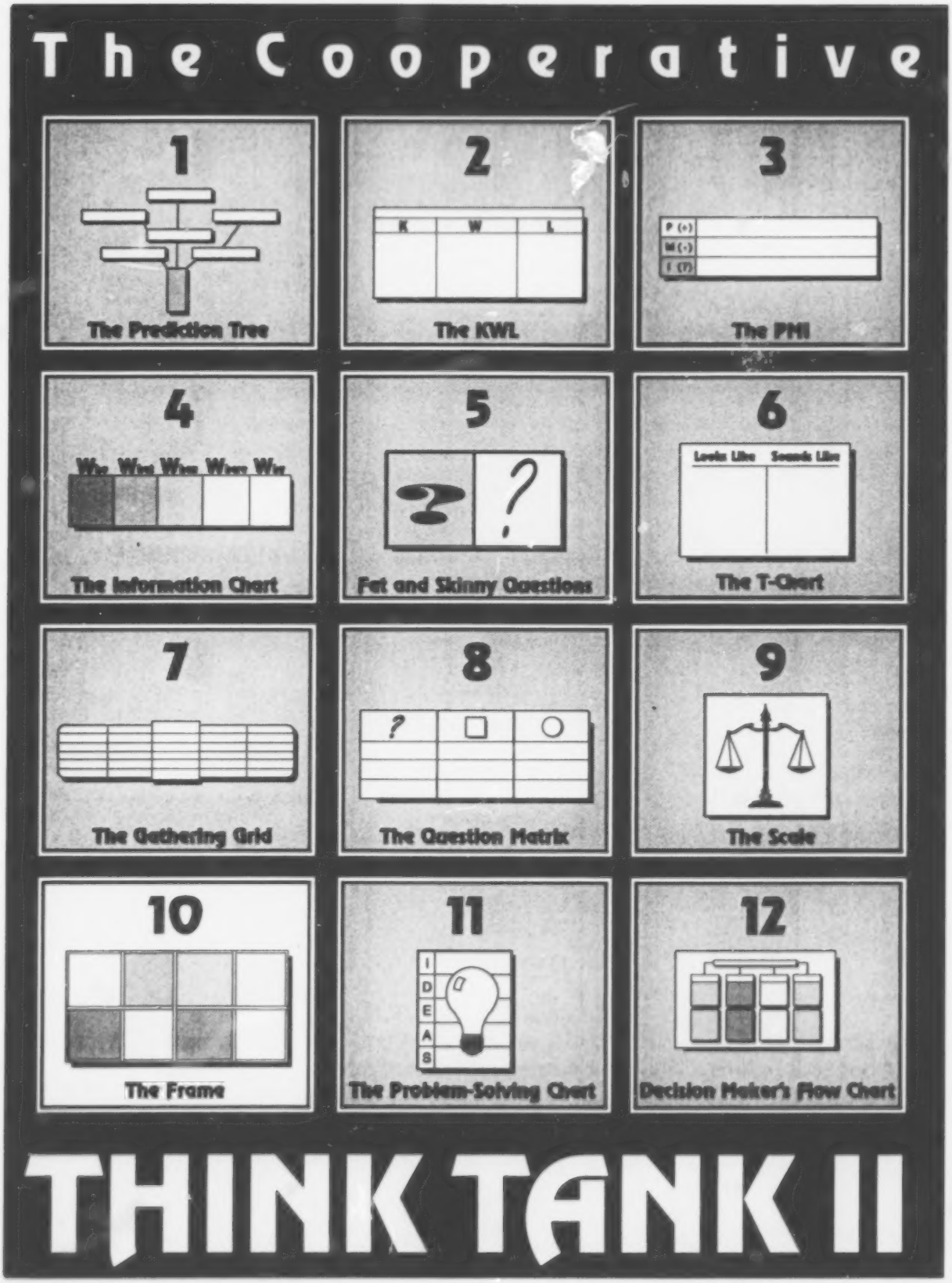
Item 2

Criterion: _____

_____

_____

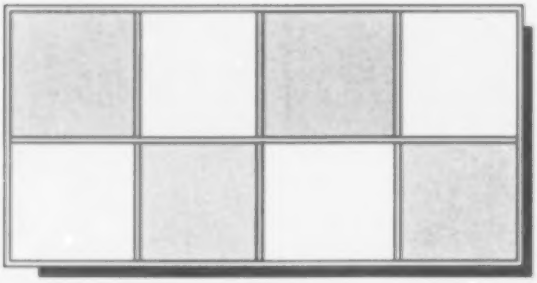
The Cooperative



THINK TANK II

CHAPTER

10



The Frame

■ PURPOSES
To sequence story events.

To outline sequential events or materials.

■ VOCABULARY
Frame—lines to enclose or set off printed matter in a newspaper, magazine, etc.
Sequence—the following of one thing after another; succession.
Framework—a frame or structure composed of parts fitted and joined together.

■ THINKING SKILLS
Sequencing, Perceiving Time-Sequenced Relationships

INTRODUCTORY LESSON

From a Sunday paper, cut out one seven-to-ten-frame comic strip for every three students in your class. Cut the strip into frames, and put each set into an envelope. Assign students to mixed ability groups of three. Give each group one envelope, one blank piece of newsprint or cardboard, and a tube of paste. Tell them to arrange the frames into a sequence that makes sense.

When the groups have finished, have each member of the group who helped sign the finished product. Rotate the completed sequence frames among groups to check. Assist with any disagreements.

Explain to students that they are going to learn how to frame stories and information. A framework consists of six or more frames arranged in a time or an idea sequence.

To prepare for the first framework, give each trio a large (at least 18" x 36") sheet of blank newsprint and several markers or crayons.

Let each group select a recorder who will divide the sheet into three equal parts and do the major draw/write work in each frame; a checker who will collect agreement on the ideas for each frame; and an encourager-reader.

Provide each with one copy of the story or another brief story of your selection. After the reader reads the story to the group, invite the groups to agree on the eight major events in the story. After selecting the events, the group will frame each one in order. Each frame needs cartoon figures with balloon comments. All who contribute sign the finished framework.

THE DINNER PARTY

BY MONA GARDNER

The country is India. A colonial official and his wife are giving a large dinner party. They are seated with their guests—army officers and government attachés and their wives, and a visiting American naturalist—in their spacious dining room, which has a bare marble floor, open rafters, and wide glass doors opening onto a veranda.

A spirited discussion springs up between a young girl who insists that women have outgrown the jumping-on-a-chair-at-the-sight-of-a-mouse era and a colonel who says that they haven't.

"A woman's unfailing reaction in any crisis," the colonel says, "is to scream. And while a man may feel like it, he has that ounce more of nerve control than a woman has. And that last ounce is what counts."

The American does not join in the argument but watches the other guests. As he looks, he sees a strange expression come over the face of the hostess. She is staring straight ahead, her muscles contracting slightly. With a slight gesture she summons the native boy standing behind her chair and whispers to him. The boy's eyes widen, and he quickly leaves the room.

Of the guests, none except the American notices this or sees the boy place a bowl of milk on the veranda just outside the open doors.

The American comes to with a start. In India, milk in a bowl means only one thing—bait for a snake. He realizes there must be a cobra in the room. He looks up at the rafters—the likeliest place—but they are bare. Three corners of the room are empty, and in the fourth the servants are waiting to serve the next course. There is only one place left—under the table.

His first impulse is to jump back and warn the others, but he knows the commotion would frighten the cobra into striking. He speaks quickly, the tone of his voice so arresting that it sobers everyone.

"I want to know just what control everyone at this table has. I will count three hundred—that's five minutes—and not one of you is to move a muscle. Those who move will forfeit fifty rupees. Ready!"

The twenty people sit like stone images while he counts. He is saying "...two hundred and eight..." when, out of the corner of his eye, he sees the cobra emerge and make for the bowl of milk. Screams ring out as he jumps to slam the veranda doors safely shut.

"You're right, Colonel," the host exclaims, "A man has just shown us an example of perfect control."

"Just a minute," the American says, turning to his hostess. "Mrs. Wynnes, how did you know that cobra was in the room?"

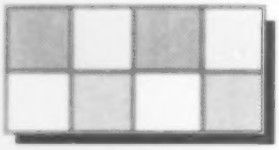
A faint smile lights up the woman's face as she replies: "Because it was crawling across my foot."

© *Saturday Review*, January 31, 1942

EXAMPLE:

Invite each group to post its work for all to see. Comment on the *best* features among the completed works. Ask each recorder to describe how the group worked well together. Conclude by reviewing the steps for completing a framework.

1. Read information.
2. Break into parts.
3. Frame each part.
4. Check for order of parts.



ELEMENTARY SCHOOL TOPICS

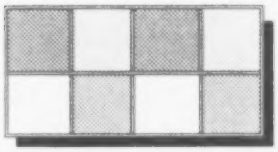
The Little Engine That Could
Dumbo
Anne of Green Gables
Comics
How to make a peanut butter and jelly sandwich

REVIEW AND TRANSFER

Use a poster or overhead to review the four steps before each application lesson. To develop students' expertise with the framing organizer repeat the steps with reading material that is more difficult, either by the length or by the complexity of the stories you select. You may wish to vary the story difficulty by each group's readiness or to allow each group to select its own story to frame. When different groups select different stories it allows for group presentations to the whole class. After each presentation, encourage the other students to ask questions about the story. The group recorder can write down these questions. These can serve as a pre-reading incentive for students who

might want to read the story for an independent bonus assignment.

In addition to edited stories, fables, and short stories, narrative poems make good material for frameworks. Add editorials, magazine articles, and textbook chapters when you feel students have mastered the narrative mode and are ready to frame key ideas in the expository mode.



MIDDLE SCHOOL TOPICS

Time, Newsweek, Sports Illustrated
How to build a fire
News editorials
To Kill A Mockingbird

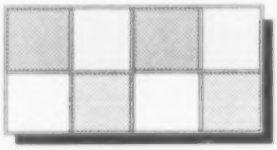
TEST

To assess student knowledge and skill with framing:

- ❑ Give a vocabulary quiz.
- ❑ Provide four frames. Ask the students to write instructions for a framework.
- ❑ Provide a short article. Instruct the students to frame it.

OPTIONAL

- Invite students to frame each individual "free reading" or research topic completed.
- Encourage students to read by theme. In a journal, invite the students to frame each article or story read and use a matrix to identify similarities.
- Invite each group to select three different articles or books on a single idea. After reading, they can discuss the similarities and construct a framework on their own ideas.



SECONDARY SCHOOL TOPICS

"Letter from a Birmingham Jail"
Newspaper columnists
Raisin in the Sun
Death of a Salesman
Romeo and Juliet
How to use a word processor

APPROPRIATE USES

- To gather information and place it in an order—by time or by concept development.
- To encourage translation of ideas from print into a different mode of expression.

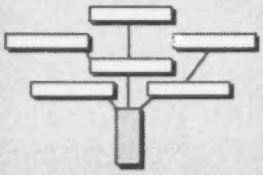
THE FRAME

Name(s):

1	2	3	4
5	6	7	8

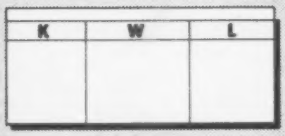
The Cooperative

1



The Prediction Tree

2



The KWL

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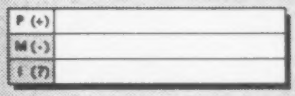
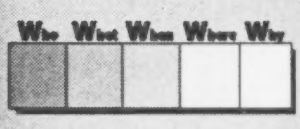


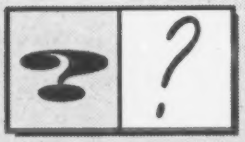
The PMI

4



The Information Chart

5



Fat and Skinny Questions

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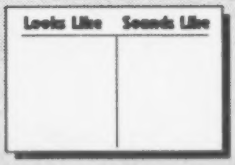
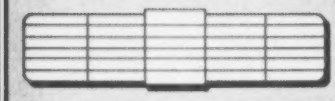


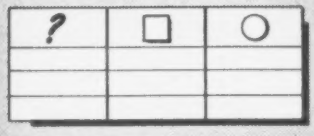
The T-Chart

7



The Gathering Grid

8

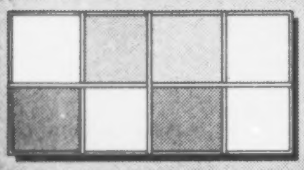


The Question Matrix

9

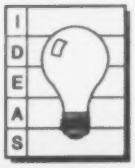
The Scale

10



The Frame

11



The Problem-Solving Chart

12

Decision Maker's Flow Chart

THINK TANK II

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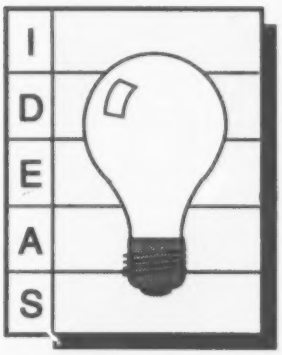
CHAPTER

11



The Problem-Solving Chart

■ **PURPOSES**
To enable students to pose and solve problems or challenges.

To provide students with a problem-solving model that uses already developed thinking patterns.

■ **VOCABULARY**
Issue—a point in question or a matter in dispute.
Problem—any question or matter involving doubt, uncertainty, or difficulty.
Alternative—a choice limited to one of two or more possibilities.
Criteria—standard rules or principles for testing something.

■ **THINKING SKILLS**
Problem Posing, Alternative Seeking, Analyzing, Evaluating by Criteria, Sequencing, Priority Setting

INTRODUCTORY LESSON

Divide the class into trios. Give each trio a set of three identical role cards (i.e., all checkers, all recorders, all encouragers). On the board or overhead, show the master problem-solving chart (p. 90). Use a cover sheet as you introduce the first lesson to reveal each of the five IDEAS steps one at a time.

I	Index the facts as you see them.
D	Define the problem.
E	Expand on ideas or possible alternatives.
A	Adopt a criterion.
S	Select and sell your idea to others involved.

Begin by explaining the steps. Allow wait time and slowly uncover each step. Use one of the samples (p. 86–88) to explain and clarify.

Next, have students fill out a blank chart (p. 90). Use "selecting job roles" as a topic. Explain that the three in a group all have the same job cards. Tell the class that they will need to figure out

how to get into groups with three different roles. Have each group use the problem sequence to work through IDEAS and find new groups. Give each trio one master chart on a transparency overhead or large newsprint.

Allow six to ten minutes. Ask persons in several different groups to share completed charts with the class. Invite listeners to search for similarities between the three or four presentations. After each presentation, ask group members to share what the group found easy or difficult in completing the chart. Use applause or other "hurrahs" after each presentation.

Refine how the groups used the chart by making comments that highlight what was done well. Review the vocabulary. Add other suggestions before you redivide the groups into new trios. The sole criterion for the new trios is that each have one recorder, one encourager, and one checker as designated by the card each holds.

Provide each new trio with a blank master form. On the board or overhead give or brainstorm with the class possible problem topics.

Invite the trios to review their member roles, the cooperative guidelines, and the IDEAS problem-solving chart. Each group will select its problem issue and work through IDEAS. After ten minutes or so, identify two individuals to share group charts. After each group reports, ask the others to give feedback by identifying what the group did well on its thinking and how it might improve in the next round. After you have added to their feedback, match groups up to share completed charts. For each group of six, add one or two members from the first two groups. In each group of six, allow time for both groups to share and give feedback to each other.

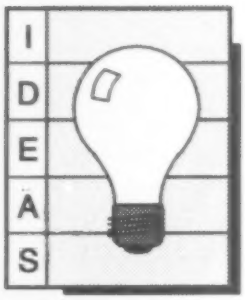
Close the lesson with a review of IDEAS and the key vocabulary with the entire class.

REVIEW AND TRANSFER

Before you introduce new lesson or units, select a problem issue from the chapter. Review IDEAS step by step and the DOVE guidelines (see p. 44). It helps to have both IDEAS and DOVE posted in the classroom on a colorful chart.

Distribute markers and newsprint to each trio so the recorder can outline the chart. After you use the chart for a few lessons, conduct all class discussions on the *benefits* of IDEAS and its application outside your classrooms.

The most beneficial aspect for you is the chance to help students frame key lessons in a problem sequence. Familiar with the steps, students will more easily take responsibility to think through the subject content of your curriculum.



ELEMENTARY SCHOOL TOPICS

Stranger danger
Homework
TV time
Fighting with a friend
Family
Schoolwork

ELEMENTARY SCHOOL SAMPLES

- Students read stories and discuss the problems.
- Students discuss school problems (e.g., playground fights, noise in the classroom) and out-of-school problems (e.g., strangers, TV time).
- Students research environmental issues (e.g., spotted owl, rain forest, gasoline shortage) or social issues (e.g., homelessness, drugs).

ELEMENTARY SCHOOL EXAMPLE

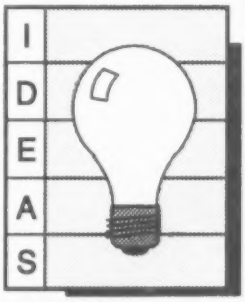
Topic: The Lion and the Mouse

I	-Lion caught in a trap
D	-Lion about to be killed
E	-Free lion, eat ropes -Leave lion, eat hunters -Chase hunters
A	-Lion and mouse both go free
S	-Eat the ropes and run from hunters

- Students study famous people and identify how each dealt with a problem (e.g., Martin Luther King and violence, Ray Charles and blindness).
- Students discuss "how-to" problems (e.g., care for a pet, get to school on time).

MIDDLE SCHOOL SAMPLES

- Students study short story or novel characters or historic figures and compare how each solved a problem.
- Students study how immigrant groups solved a problem in coming to America.
- Students use IDEAS to analyze math word problems.
- Students research ecological issues in the local community and use IDEAS to solve a problem.



MIDDLE SCHOOL TOPICS

Being grounded
Friends
Put-downs
Cliques
Clothes
Homework
Gangs
Parents

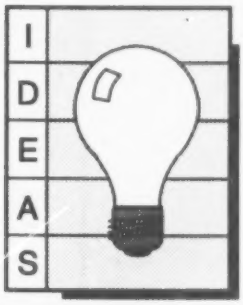
MIDDLE SCHOOL EXAMPLE

Topic: Noise in Cafeteria

I	-Students yell across table, clash trays, high pitch
D	-Students not controlling loudness
E	-Quiet signs and signals -Air raid siren -Ban the noisiest -Quiet checker at table
A	-Students can hear to the other end of table -Students use 6" voices
S	-Table checker and signal; have all students practice.

SECONDARY SCHOOL SAMPLES

- You rephrase textbook chapters in science or social studies into a problem statement. Students read the text from an IDEAS perspective.
- Drama, short stories, and novels are presented via a problem statement. Different groups can read different fiction pieces from a similar problem perspective and contrast with IDEAS.
- Students research contemporary community issues and discuss in the IDEAS framework.



SECONDARY SCHOOL TOPICS

Sexual harassment
Parties with alcohol
Dating
Grades
College
War
Beauty
Trust
Jobs
Money

- Extracurricular organizations use IDEAS to resolve challenges (e.g., Student Council faced with litter on school grounds).

SECONDARY SCHOOL EXAMPLE

Topic: Community Garbage

I	-Junk and food wrappers on lawns and streets
D	-Community looks dirty
E	-Ban junk food -Clean-up campaign -Containers on corners
A	-100% no junk food wrappers
S	-Students have a clean-up day once a month

As students progress in their ability to apply IDEAS to more and more complex issues, it is best to keep them aware of these four points.

1. IDEAS is a framework for problem solving. Before you start the task, review the framework out loud with a partner or two. Also review your jobs and the task's goal.

2. As you work on the task, review how well you are doing with each step.

3. After the task is over, look back over what you did. Assess how well you used the framework.

4. Assess how well each person helped the team and kept a focus on the team goal.

IDEAS serves as a *thread* for integrating your curriculum. When you give feedback to the students, encourage them to see how they are improving in the use of the IDEAS as a "mind tool" which they can apply in other classes.

TEST

To assess how skillful the students are becoming, test for knowledge of the process:

- ❑ Quizzes on the vocabulary.
- ❑ A matching quiz on the elements of IDEAS.
- ❑ A short essay to explain the meaning of each element and its importance in the sequence.

For skill in using the process:

- ❑ Provide three problems students have not seen. Have each student select two and develop a solution via the IDEAS framework.
- ❑ Ask students to write instructions for use of the framework with a problem you provide.

For transfer of IDEAS beyond your curriculum:

- ❑ Ask students to identify a problem situation in another classroom, another curriculum, or outside the curriculum, and explain how to use IDEAS with the selection.
- ❑ Give students a completed framework. Instruct them to write an evaluation of this sample.

OPTIONAL

- ■ Have students interview parents, relatives, friends, or local store owners about a problem they perceive in the community.
- ■ Have students create a fictional problem in the IDEAS framework. After solving the problem, have the group collaborate on a short story they write and illustrate.
- ■ Have students create math word problems with topics from a local store and exchange the problems with other groups to solve.

APPROPRIATE USES

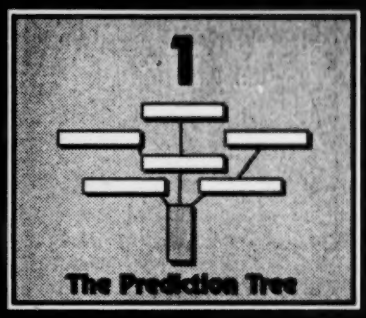
- ■ In curriculum content that lends itself to a problem scenario.
- ■ To teach problem-solving procedures.
- ■ To assess knowledge of a concept or event, and set up the information in an IDEAS framework.

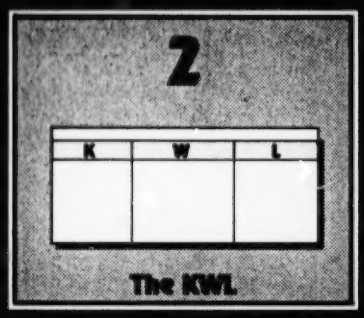
THE PROBLEM-SOLVING CHART

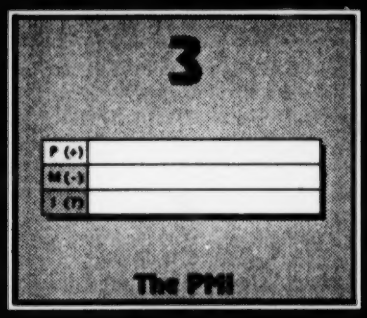
Topic:

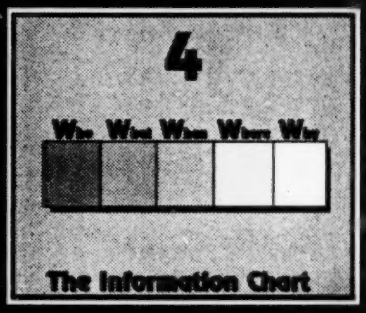
I Index the facts as you see them.	
D Define the problem.	
E Expand on ideas or possible alternatives.	
A Adopt a criterion.	
S Select and sell your idea to others involved.	

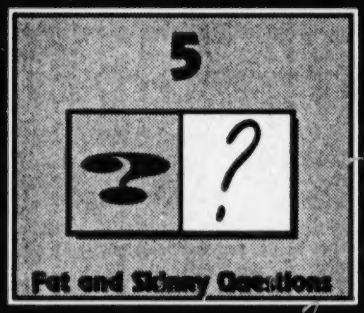
The Cooperative

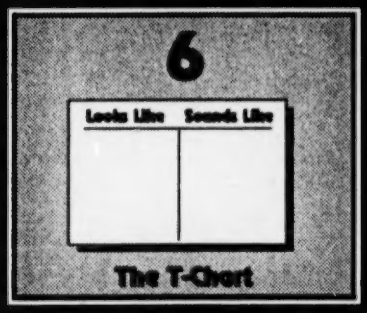


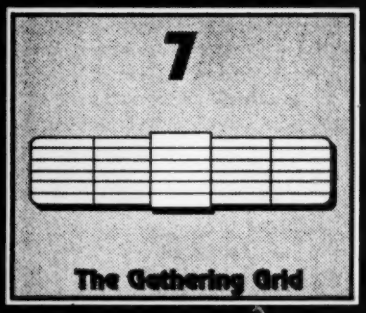


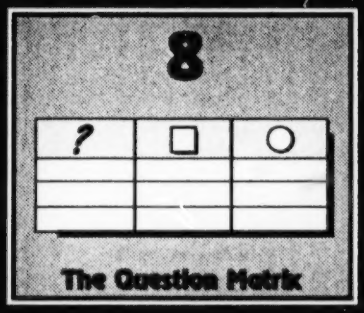


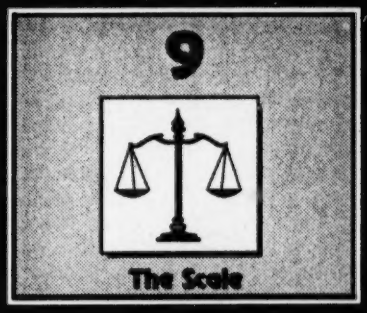


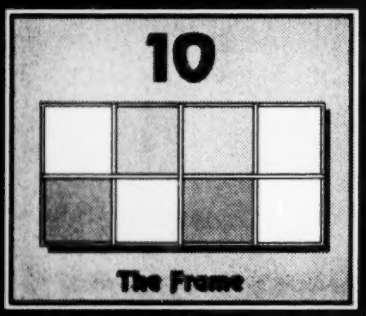


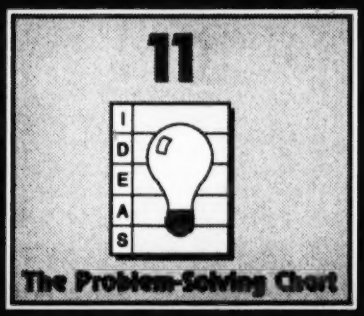


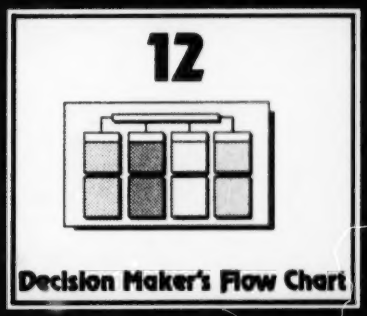








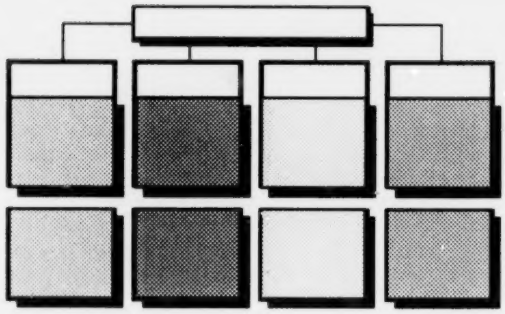




THINK TANK II

CHAPTER

12



The Decision Maker's Flow Chart

■ **PURPOSE**
To enable a student to structure the decision-making process.

■ **VOCABULARY**
Need—a requirement, necessary duty, or obligation.
Consequence—effect, result, or outcome of something.
Alternative—a choice limited to one of two or more possibilities.
Decision—determination of a question by making a judgment; the act of making up one's mind.
Flow Chart—a detailed diagram of the steps in a process.

■ **THINKING SKILLS**
Generating Alternatives, Brainstorming, Analyzing, Evaluating, Deciding

INTRODUCTORY LESSON

On the overhead or a large sheet of newsprint, display the blank flow chart (see p. 97). Label each step and explain its purpose: need, alternatives, consequences, and decision. Indicate that the goal of this lesson is to learn how to use this chart.

1. Divide the students into trios. Give each student in a trio two of the vocabulary words. Either supply and review the meanings with the entire class or invite each student to search out definitions from a dictionary.

2. Invite each student to sketch a picture of each assigned word and use the sketch to teach the words to the groups. The group may elect a checker. The checker's job is to quiz the members to ensure *all* can explain each word's meaning in his or her own words.

3. Allow ten minutes. Give an individual written quiz or do a random oral quiz.

When you are satisfied with students' vocabulary mastery, provide a sample topic above the blank chart and enter the need.

ELEMENTARY SCHOOL

Topic: TV

NEED: To select one-hour show per week

	Cartoons	Cosby	All Things	MTV
+	+lots of choices +morning +can do other things while watching	+nice family +funny +no swearing +early	+animals +real people +no swearing +scenery	+music +stars
–	– too many choices – violent – babyish – sister hates	– reruns – homework first	– funny language – slow story – gory	– swearing – Mom hates – repeats – dumb ideas

Decision: Cosby

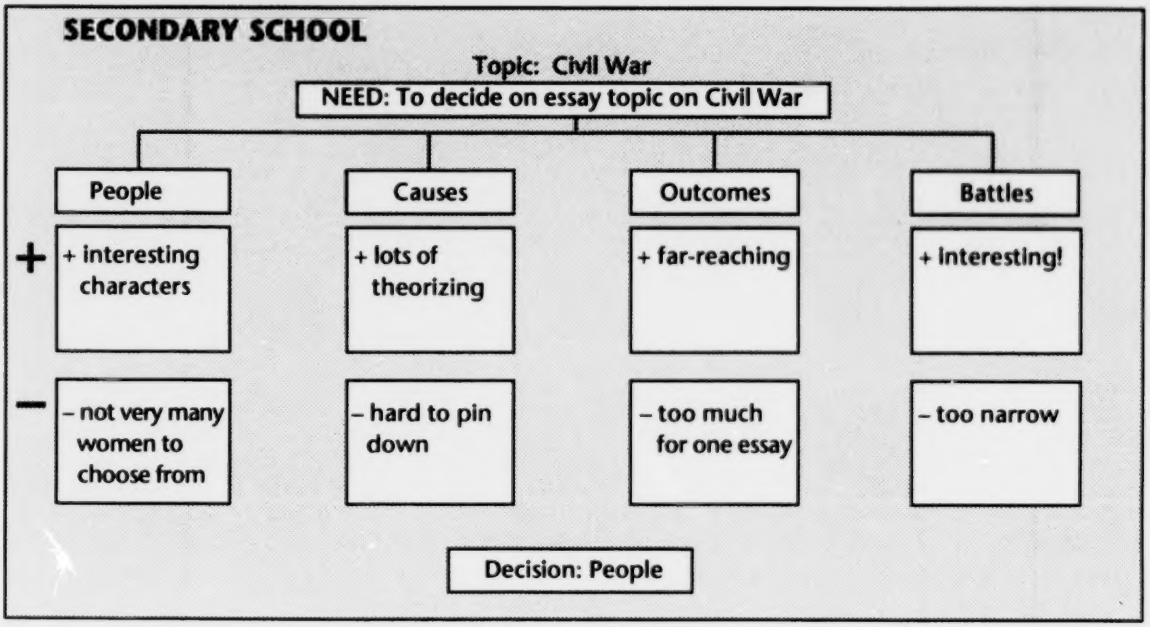
MIDDLE SCHOOL

Topic: Sports

NEED: Which one to play this spring

	Soccer	Riding	Softball	Track
+	+ all my friends + uniforms + exercise + Saturday AM + cheap	+ good teacher + exercise + horses + inside + easy to get to + all alone + fun	+ easy team + nice coach + cheap	+ none
–	– coaches holler – cheaters – pressure to win – cold days	– cost – mucking	– catching the ball – gets boring – hard to get to – no uniforms	– nobody does – not cool – boring – cold days

Decision: Riding



With the class, brainstorm topics for decision making. List these so all groups can see to select. Review the DOVE guidelines (p. 44) and the roles of encourager, checker, and recorder. Distribute markers and newsprint to each group of three. Invite each group to select its own topic from the list and give fifteen to twenty minutes for the group to agree and record answers for each step.

Post completed charts and allow several groups to explain the work. Give praise and constructive feedback, as necessary. Conclude by (a) asking each group to assess its teamwork (What did we do well as a team? How can we do better next time?); and (b) reviewing the steps in the decision-making chart.

REVIEW AND TRANSFER

In addition to high-interest topics for decision making, you may structure chart use into various curricular areas.

Once you select the area, identify the topic. For instance, in primary reading, you may plan to use a single book such as Robert Munsch's *Pigs*. As the class reads the story, stop at key spots and ask the

students to identify the girl's decision: What is the need? Her possible choices? What are the possible consequences? Choose for her and see what happens. Read through the entire story with several stops.

Next, put the students into reading trios (a strong reader, an O.K. reader, a "not yet" reader). Assign the reader, the recorder-checker, and the encourager. Let each group select its own book. (Munsch's books lend themselves well to this chart and there are more than enough for ten to twelve groups in a class.)

Invite each group to read about a quarter of the story until it discovers a decision that needs to be made. From this point, groups may complete the chart. (When students improve their skill, you may "up the amount" and ask for two or three charts per story.) After all groups have completed the charts, hang the finished works. Before the students share the completed work, invite each group to review its teamwork (what we did well...), sign the charts, and/or draw a picture that shows the decision made by the main character.

As individual students show mastery of the chart use, encourage "advanced" application with individualized reading selections.

Although the topic selected at the middle and secondary grades will vary, the process for teaching chart mastery is the same.

1. Model the task with whole-class participation on the example material.

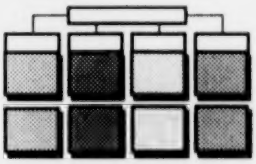
2. Structure mixed ability and/or motivation trios. Review group roles, procedures, etc.

3. Allow each trio to select its material/topic. Identify the number of charts.

4. Share completed products.

5. Structure "teamwork" review.

6. Structure individual applications.



LANGUAGE ARTS
Story character's decisions
Writing topics
Independent reading book
Theme selection

SOCIAL STUDIES
Historic character's decisions
Research topics
Group inquiry topics
Exhibition topic

SCIENCE
Scientist's biography
Experiment
Career choice
Research topic

MATH
Problem solving
Method
Exhibition topic
Application

FINE & PRACTICAL ARTS
Artist biography
Medium
Project topic
Subject selection

PE/HEALTH
Practice focus
Team game
Favorite sport
Nutrition

BUSINESS EDUCATION
Software program
Report format
Hardware
Career choice

TEST

To assess knowledge and skills with this organizer:

- ❑ Quiz vocabulary knowledge.
- ❑ Quiz ability to label and explain steps.
- ❑ Provide material. Ask the students to write instructions for using the chart with this material.
- ❑ Assign a research topic or unfamiliar reading material from your texts. Provide instructions for completion of a decision chart.

OPTIONAL

- Set up hypothetical real-life scenarios age appropriate for your students. Identify and chart decision points.
- Invite students to identify decision points, construct scenarios, and chart solutions.
- Structure interviews of parents, businesspeople, church and community leaders. Use the chart to examine their decision points.
- Structure units in social studies or literature around critical decisions made by main characters. Have students role-play and validate the decisions.
- Chart decisions in current events, TV, etc.

APPROPRIATE USES

- Age-appropriate decisions from students' daily life inside school, free time, on a job, in the home, or in the community (e.g., drugs, gangs, friends).
- Schoolwork decisions.
- Career choices.
- Study of decision makers.

THE DECISION MAKER'S FLOW CHART

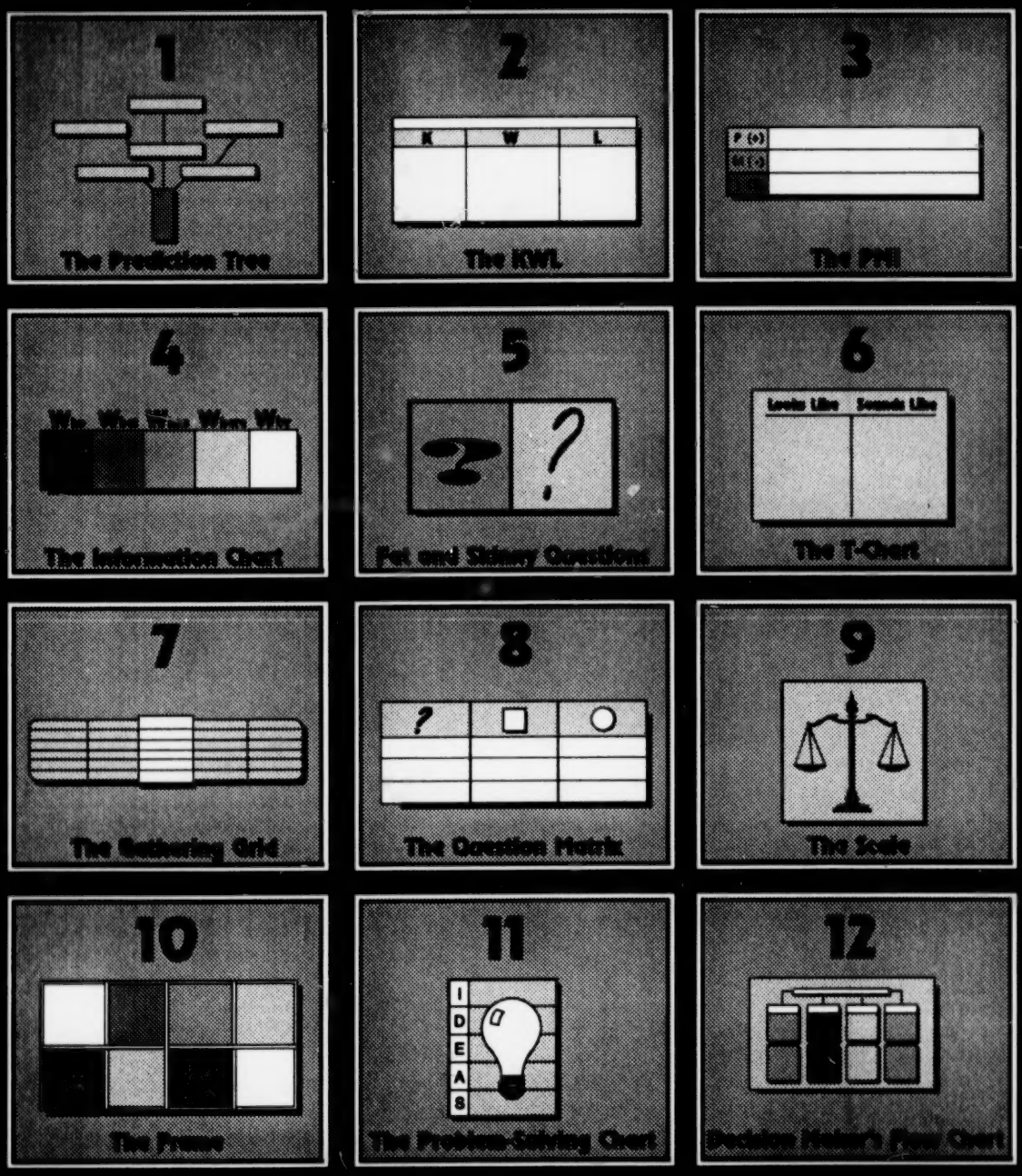
Topic: _____

NEED:

+				
−				

Decision:

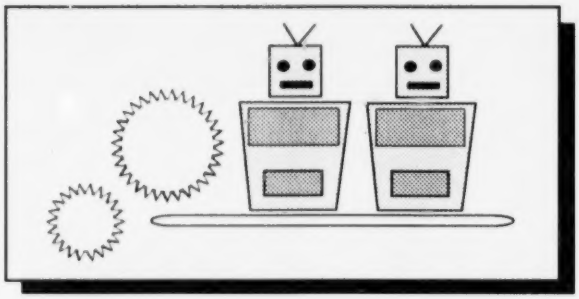
The Cooperative



THINK TANK II

CHAPTER

13



Invent Your Own

Beyond the visual graphics for organizing thinking patterns, there are more thinking patterns and more graphics that are possible, and, perhaps, yet to be invented. You may invent the next organizer, or you may help your students create the next ones. Here are the suggested procedures for "invent your own."

1. What are the thinking skills or thinking patterns that need a graphic organizer? Brainstorm a list and select the skill or pattern which will help your students most.

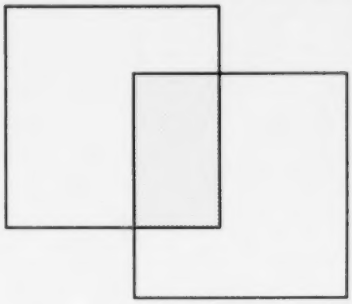
2. What visual metaphors or graphic forms come to mind for the skill you have selected? For instance, how might a common organizer such as a desk or filing cabinet help with analysis?

3. What are the procedures which will enable students to think through a thoughtful task? For a sample, review IDEAS. (Note that the framework for the problem solving is broken down into five procedures.)

4. What key verb or noun will help students recall the parts of the organizer? Play with synonyms of the

thinking skill or pattern so that you can create an acronym such as IDEAS. Note how the key instructional phrases begin with a work that creates the acronym. Instead of a word like "gather" or "collect" to start the procedure instructing the thinker to "get the facts," the term "index" is used. It fits the need for an "I" and it suggests both gathering of the facts and putting them into an order.

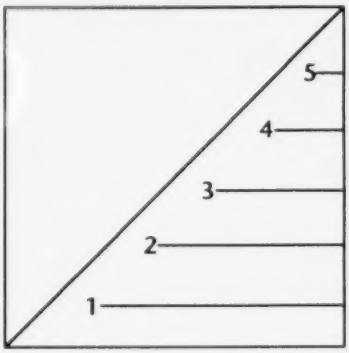
SQUARE VENN DIAGRAM



5. Sequence your lesson design.
   a. Purpose of the Organizer
   b. Vocabulary
   c. Thinking Skills or Patterns
   d. Introductory Lesson

   Determine:
   1. Group Size
   2. Roles and Instructions
   3. Guidelines
   4. Visual Overheads
   5. Materials
   6. Task Instructions
   (Keep the first task simple and fun.)
   7. Assessment of Organizer Task
   8. Assessment of Cooperation
   9. Closure

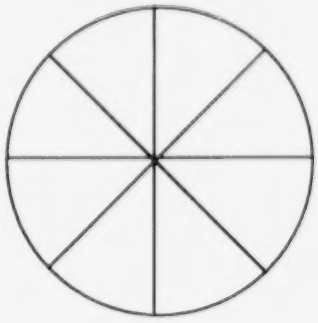
PLOT BUILDER



6. Field test your lesson design. Teach the lesson to your class. After the lesson, ask students to evaluate the design. Use the PMI organizer (p. 23). Review the responses. Ask the students to clarify what difficulties they encountered and make adjustments in your design. If student groups are making designs, have them exchange their designs and use the PMI to evaluate each design. Use these criteria:

   •To what degree does the organizer help visualize the thinking pattern?
   •To what degree does the organizer make simple and structured the pattern of thinking?
   •To what degree is the organizer usable with a variety of subjects?

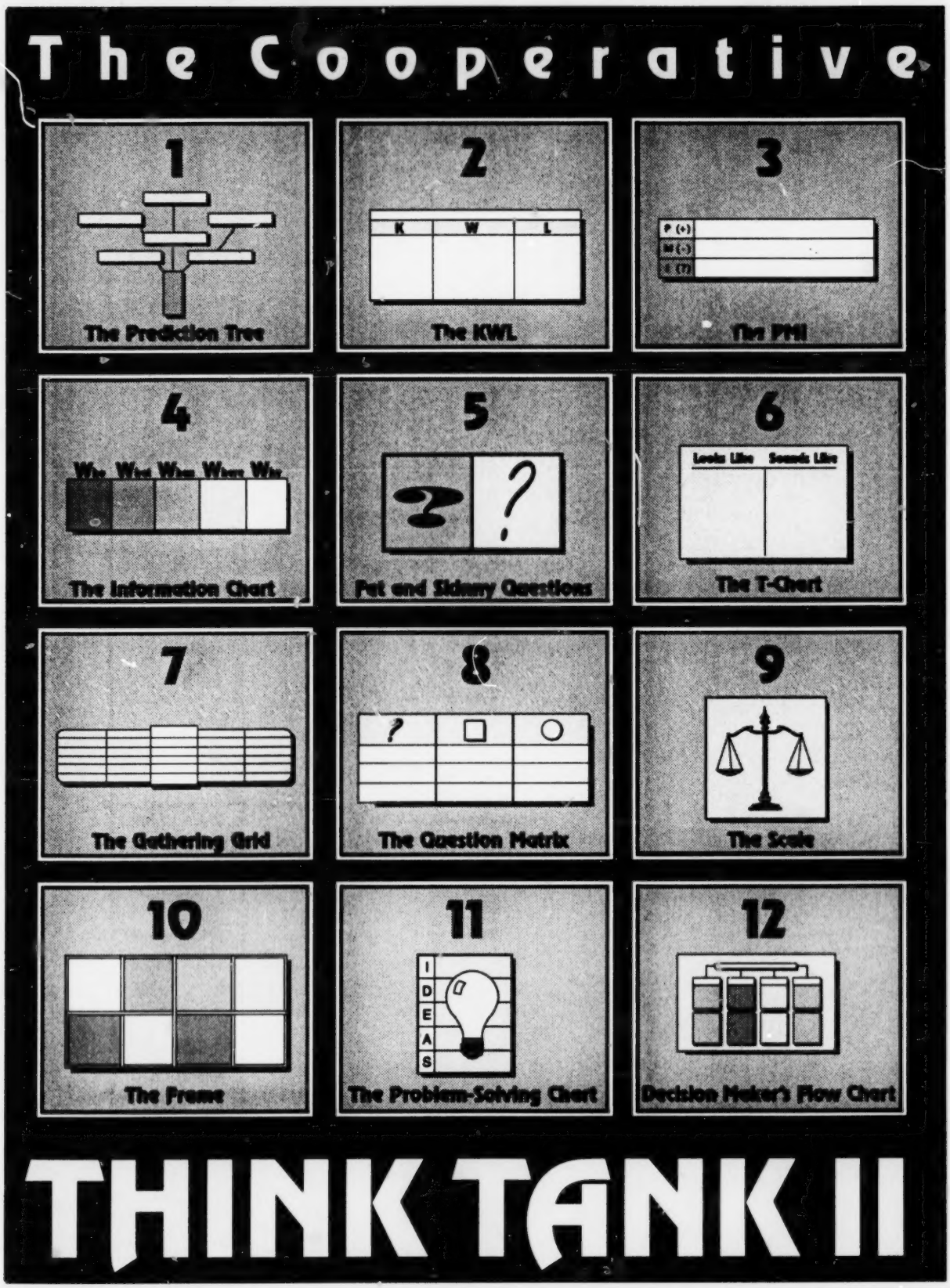
PIZZA WHEEL



7. Field Test Schedule
8. Revisions

INVENT YOUR OWN GRAPHIC ORGANIZER

The Cooperative



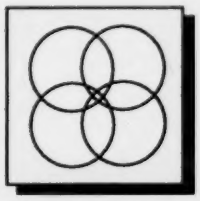
THINK TANK II

CHAPTER

14

Nested

Threaded



Integrated

Integrating Organizers Across the Curriculum

Graphic organizers are helpful tools for integrating curriculum.

1. *The nested model.* Once students have mastered an organizer's use through the introductory lesson, you have multiple opportunities to *nest* your curricular concepts into a triple-agenda lesson. In this model, the students are (a) learning the content of the lesson, (b) improving thinking skills, and (c) refining cooperative skills. This model needs careful planning. The payoffs in time saved and impact are much greater than if you taught the content lesson, the thinking lesson, and the cooperative lesson in separate time segments.

   The lesson designs used in this book provide examples of the nested model. Unlike the behavioristic approach to learning that argues for single objective lessons, this model calls for three integrated learning objectives: for content,

for cooperative development, and for cognitive development. Such a triple-agenda lesson will also require integrated strategies and threefold assessment.

2. *The threaded model.* By concentrating on student mastery of a single organizer, so that they develop transfer capability, you thread a pattern of thinking through multiple topics, concepts, or lessons in curriculum. In the elementary classroom, the thread binds multiple subject areas; in the upper grades, it threads through historic periods, literature, or whatever is the core content of the course you teach.

   Themes make the most common threads. In a course, a single theme can weave through a variety of topics in language arts or through several periods of history. In the primary grades, the threads could be a social skill such as kindness, conflict resolution, or teamwork. In the middle grades, the theme might be a thinking skill such as estimating threaded through a sequence of math topics. In a secondary classroom, the thread might be a concept such as integrity threaded through the study of environmental issues or historical characters. All such threads enable students to connect their examination of the concept or application of the skills from a variety of perspectives.

   Understanding the thread becomes more important than the connected items. When themes are selected, it is important to identify significant themes. Concrete objects such as bears, automobiles, and flowers are not significant themes.

   Conflicts, social topics, and human values are significant themes. Themes with emotional depth and relevance to the students' lives outside the classroom are the most significant.

3. *The integrated model.* In the upper grades, a single organizer nested and threaded through a

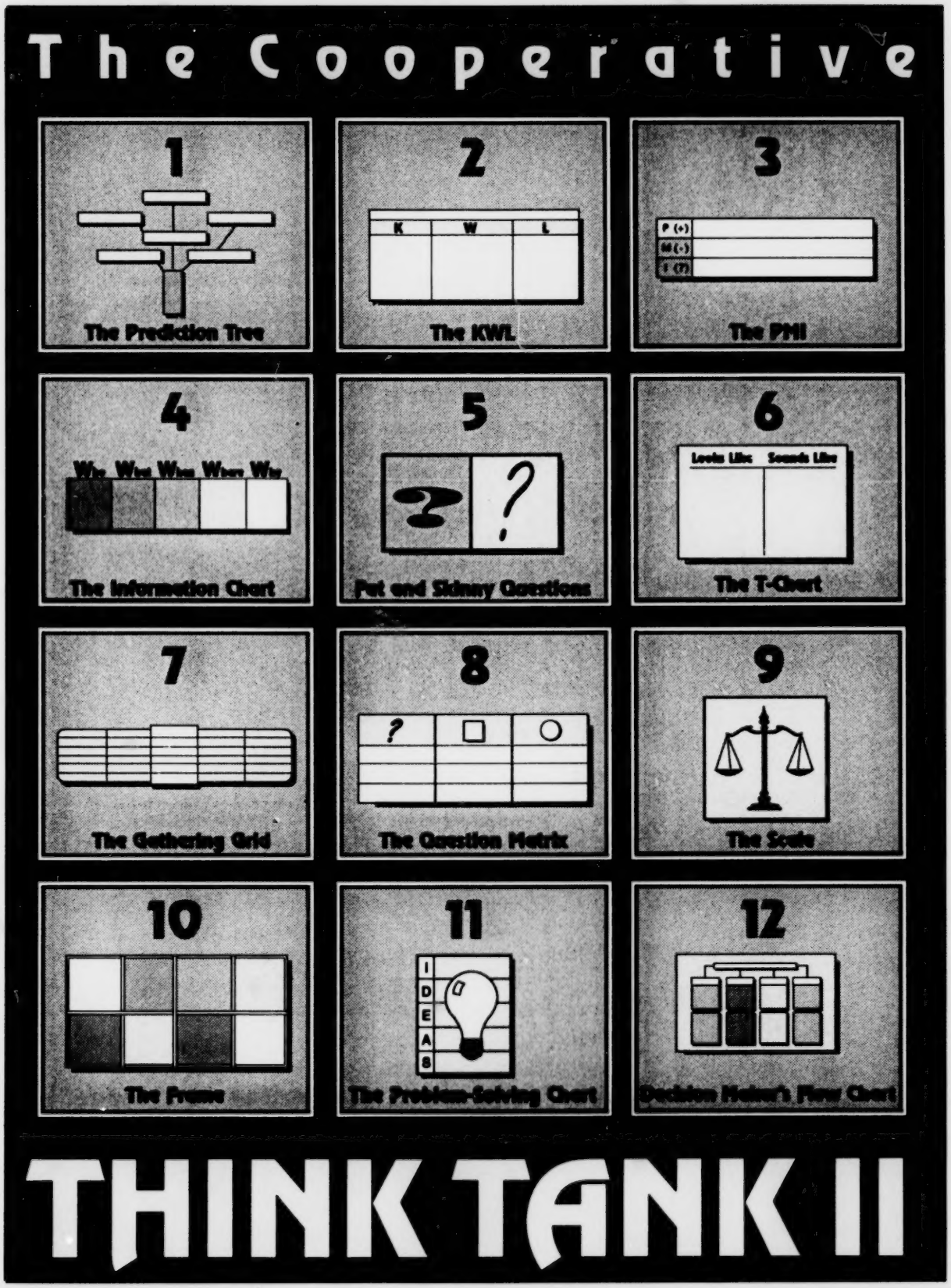
single classroom curriculum prepares the path for integration through multiple subject areas. This can happen in several ways.

a. The same organizer is used each quarter in all classes on a middle school team. The advisor helps students make the connections during a specified time once a week.

b. The same organizer is used each quarter in all classes at a high school grade level. One class is designated as the "connector."

c. After learning several organizers in the first quarter, upper-grade students select the appropriate organizers to use on various class assignments. Teachers at a grade level or on a team may elect a theme as a second integrating thread.

The Cooperative



THINK TANK II

CHAPTER

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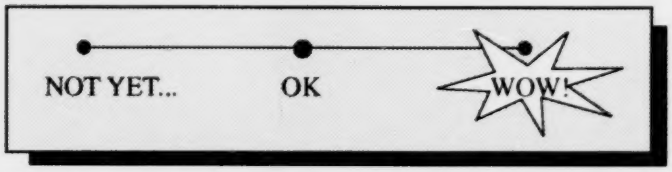


Evaluating Student Work

When your goal is to enable each student to master these "mind tools," it is best that you assess in two dimensions. First, assess the progress they are making and the improvements they show in the processes and in the product. Second, if you must, turn the total of their work into a final grade.

There are two caveats. First, keep assessment simple for the students. Second, keep it simple for yourself. You can accomplish both of these goals by remembering you are a teacher, not an accountant!

A skilled teacher assesses best by planning a lesson sequence that requires the least amount of record keeping. In a lesson sequence with cooperative organizers as the integrating tool, three or four grade entries are more than enough.

- If you give a vocabulary knowledge quiz or a quiz on the procedures of using an organizer, a √ or a + entry will suffice for each student (√ = has memorized the word, + = can explain the word). In the unit give students as many chances as needed to earn the √ or +. If some students have difficulty, encourage the

trios to coach them outside class or during downtime. Provide opportunities to pass. By the end of the unit, those who have not received a √ or + have a blank in the book. All blanks = "not yet."

- At the end of the unit, use student self-assessments to provide one grade for cooperation.
- At the end of the unit, use student products to assess skill with the organizer.
- At the end of the unit, give your individual knowledge test, essay assignment, or project on the content.

Those three grades can be the only grade book entries you make. If you wish, you can stretch KISS (Keep It Simple and Structured) to an entire quarter semester or year.

Too simple? What's the catch?

The catch is also simple. Instead of spending hours preparing quizzes and tests on minutiae and more late hours grading 125 worksheets, essays, or reports every night, cancel the end-of-lesson overload with more precise front-load planning.

Front-load planning is one of the skilled teacher's best tools for making passive students into active workers. Front loading enables the teacher to throw aspirin tablets into the waste can. Front-load planning allows the teacher to shift responsibility from the teacher as the all-knowing sage, the workhorse of knowledge, to the students as workers and thinkers.

How does front loading work?

Before the teacher starts a unit in which cooperation and thinking with graphics are central, he or she needs to identify three outcomes.

1. What is the complex, high-challenge product or exhibit expected from the students?
2. What are the cooperative, high-support outcomes expected?
3. What are the higher-thinking outcomes expected?

SAMPLE COMPLEX CONTENT	
Primary	Journal entries with daily "I learned"
Middle	Student-made math problems in portfolio
Secondary	Essays that summarize key concepts of each unit

SAMPLE COMPLEX COOPERATION OUTCOMES	
Primary	Student-observer checklist on group's behaviors
Middle	Base groups solve disagreements with five-step model
Secondary	Student teams use group investigation method

SAMPLE COMPLEX THINKING OUTCOMES	
Primary	Student portfolio contains student evaluation of best work
Middle	Students create prediction questions to literature
Secondary	Students use graphic organizers in weekly journal entry

After selecting the outcomes, keeping in mind the importance of high challenge, high support, and high thought, it is time to segment the lesson and pick indicators of success for each element. Here is an appropriate use for the framing technique (see p. 78). To see the sequence, lay out eight to ten frames. The first frames will picture (1) the end product and outcomes, (2) what students are learning about cooperative structures skills and strategies, and (3) the graphic organizer for the unit. In frame four the picture will show the intermediate assessment. Frames five through eight will illustrate the transfer tasks in which students are applying the cooperative/cognitive tools. This segment ends with a second intermediate assessment. The final segments will show students imbedding the cooperative/cognitive tools into the completion of the final product. The very last frame will show the final assessment.

After focusing this sequence, the teacher can pinpoint at each intermediate assessment and at the final assessment what he or she will see as the success indicators.

	Assessment (1)	Assessment (2)	Assessment (3)
Content	three-sentence paragraph	three-paragraph essay	clear beginning, middle, and end
Cooperation	student knows words to encourage	student starts to use encouraging words	student uses only encouraging words
Cognition	student can label steps with Venn	student follows directions to make Venn	student makes own Venn

Once the teacher has identified the indicators, he or she will design the daily-weekly lesson with structures and strategies as described in the book. When ready to indicate the unit, the teacher will provide students with an outline including (a) the final product description, (b) the final cooperative and cognitive outcomes, and, if a grade is required, (c) a description of the final grade. In general terms, this grade, where necessary, will reflect both the noted ongoing progress and the final product's value. Once the teacher has reviewed these with the class (a copy for parents is also helpful), he or she can set up the first task in the sequence and the student portfolio.

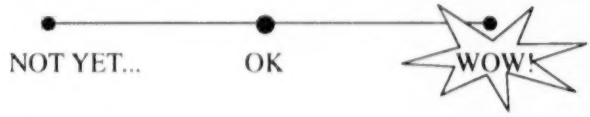
If a teacher wants to avoid being buried in paper, portfolio development must follow the KISS principle. The more students begin to understand the implications of being classroom doers, the more work they produce. Quantity precedes quality. With student work, a plan that saves you work and shifts responsibility for assessment to students is important.

If students can produce the quality work you desire, they can assess its quality. Students have the primary responsibility for assessment. The teacher's responsibility is to structure quality self-assessment by students, observe and give professional feedback, coach, make professional judgments that are reported to parents, and in too many cases—even in schools making significant reforms—reduce all products and assessments to a single grade.

To encourage student self-assessment, there are a variety of tools available. The easiest tool to use is the Likert scale. When students complete a task or at the end of a day's work, groups first will use an indicator to review what they

have done. Because the lessons have a triple agenda, it is not sensible to use the three scales at once. In the long run, you want information for all three agendas; in the short run, one thing at a time.

Begin by demonstrating one scale, against one group criterion. Point out that there are three scale marks: NOT YET, OK, and WOW!



Next, the indicators:

Sample:

Cooperation	**does role, follows team rules, uses focus social skill, uses conflict resolution skills**
Thinking	**uses organizers, shows persistence, flexibility, high fluency**
Content	**understands concept**

Instruct the teams to list what they did in the task or unit to meet the indicator. For novices, it helps to post or brainstorm a list of possibilities before they begin the task. When they do the assessment, they can select and use the pre-made chart as a starting point. After listing what they did well, the group will agree on its scale score. All sign the assessment form and put it with the product into the portfolio.

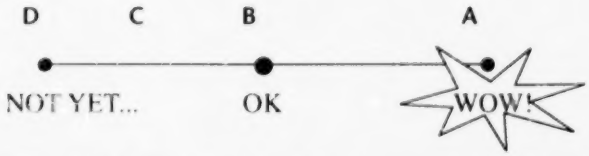
Set up the threefold expectations for each group task. As the students develop facility in self-assessment, you may consider using two or three scales for major tasks. Provide each group with a portfolio large enough to hold the paperwork from each task. Allow time for each group to use the portfolio cover for team building activities such as a team name, a team logo, a team motto, or team flag. They will include task work and their dated written assessments in the portfolio. In addition, have each individual keep a smaller portfolio. Individual assignments and self-assessments are saved here.

Once a week, or at the end of a unit, ask each group to select its best work for that time period and write the

reasons "why" for you. Collect these and add your feedback before returning to the group. If you have assigned individual tasks or assessments, make a similar "my best" assignment each week. Instead of reviewing all students' work each week, develop a random selection pattern that allows you to focus on one quarter of the class each week. This will give you time to write more detailed and precise comments.

At the end of eight weeks, instruct each individual to pick the three best work samples for the time. Instruct the students to use at least one criterion from each element—cooperation, thoughtfulness, and product—to measure their achievement. Ask students to write their reasons. If you can plan the time, confer with each student on these products and assessments.

If you don't have to provide a grade, you can add your comment to the students' summary work and send those home to parents. If grades are required, use the scale to identify the quarter mark.



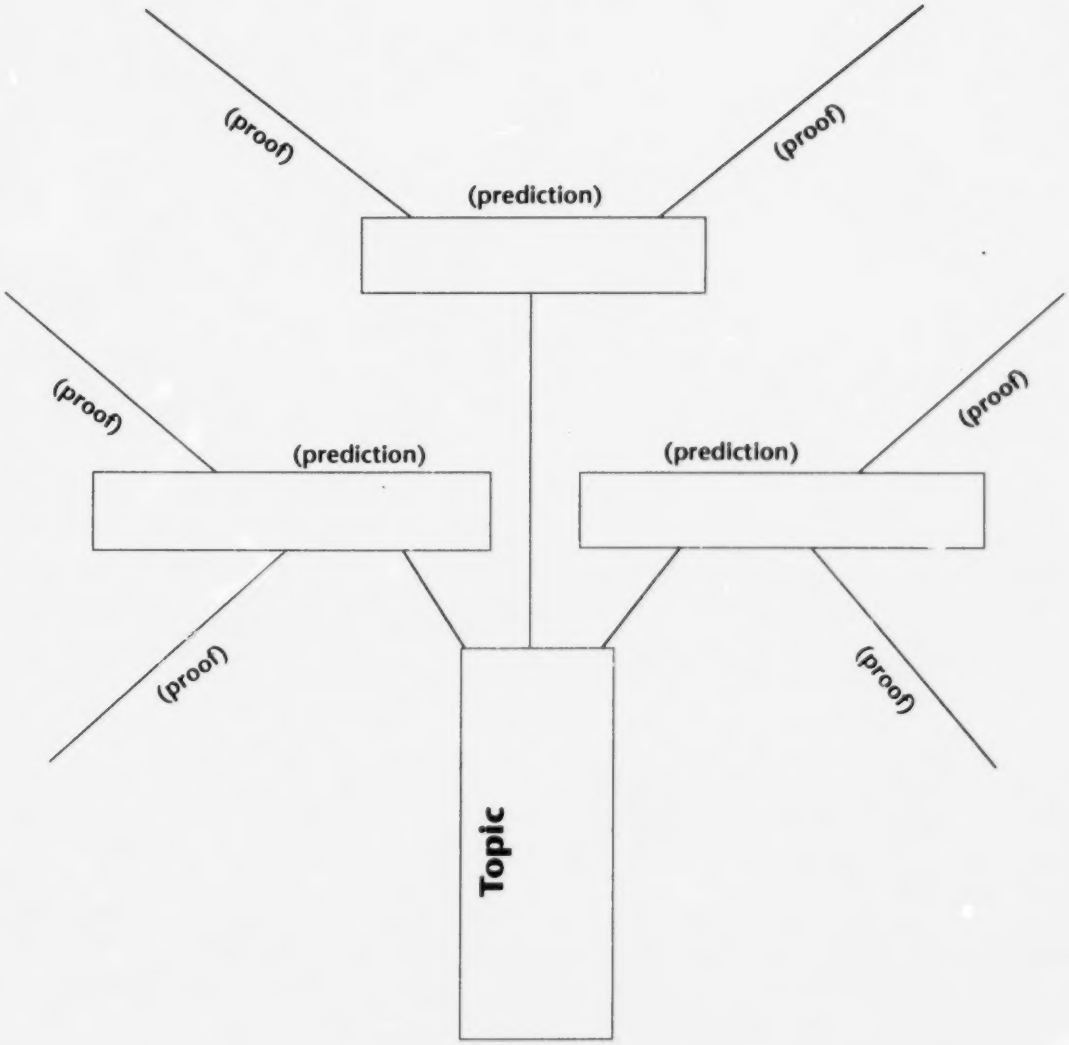
When using this approach to develop complex products or exhibitions, be clear with students that the final semester grade will be based on what they do to improve along the way and the quality of the final product. When using the triple-agenda outcomes, clarify also the relationships among cooperation, thoughtfulness, and content mastery in the grade. In addition to the criteria and indicators of success you discuss in the classroom, it will help if you provide parents with a written explanation of your grading system and the rationale.

Evaluating student performance is a necessary task. However, more important is the opportunity for students to learn self-assessment.

The ancient Chinese proverb says, "Give me a fish and I'll eat for a day. Teach me to fish and I'll eat for a lifetime." So it is that when you teach students to self-assess, you give them tools they will use throughout their lives to become better and more self-directed learners.

Blacklines

THE PREDICTION TREE



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THE KWL

Topic: _____

Know	**W**ant to know	**L**earned

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PMI CHART (PLUS/MINUS/INTERESTING QUESTIONS)

P (+)	
M(-)	
I (?)	

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THE INFORMATION CHART

Topic:

Who	What	When	Where	Why

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Topic: _____

FAT?	SKINNY?

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THE T-CHART

Topic _____

Looks Like	Sounds Like

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THE GATHERING GRID

Topic: _____

Item 1	Item 2	Category	Item 3	Item 4

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THE QUESTION MATRIX

QUESTIONS	OBJECT I	OBJECT II

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THE SCALE

Topic: _____

Item 1 Item 2

Criterion: _____

_____

_____

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THE DINNER PARTY

BY MONA GARDNER

The country is India. A colonial official and his wife are giving a large dinner party. They are seated with their guests—army officers and government attachés and their wives, and a visiting American naturalist—in their spacious dining room, which has a bare marble floor, open rafters, and wide glass doors opening onto a veranda.

A spirited discussion springs up between a young girl who insists that women have outgrown the jumping-on-a-chair-at-the-sight-of-a-mouse era and a colonel who says that they haven't.

"A woman's unfailing reaction in any crisis," the colonel says, "is to scream. And while a man may feel like it, he has that ounce more of nerve control than a woman has. And that last ounce is what counts."

The American does not join in the argument but watches the other guests. As he looks, he sees a strange expression come over the face of the hostess. She is staring straight ahead, her muscles contracting slightly. With a slight gesture she summons the native boy standing behind her chair and whispers to him. The boy's eyes widen, and he quickly leaves the room.

Of the guests, none except the American notices this or sees the boy place a bowl of milk on the veranda just outside the open doors.

The American comes to with a start. In India, milk in a bowl means only one thing—bait for a snake. He realizes there must be a cobra in the room. He looks up at the rafters—the likeliest place—but they are bare. Three corners of the room are empty, and in the fourth the servants are waiting to serve the next course. There is only one place left—under the table.

His first impulse is to jump back and warn the others, but he knows the commotion would frighten the cobra into striking. He speaks quickly, the tone of his voice so arresting that it sobers everyone.

"I want to know just what control everyone at this table has. I will count three hundred—that's five minutes—and not one of you is to move a muscle. Those who move will forfeit fifty rupees. Ready!"

The twenty people sit like stone images while he counts. He is saying "...two hundred and eight..." when, out of the corner of his eye, he sees the cobra emerge and make for the bowl of milk. Screams ring out as he jumps to slam the veranda doors safely shut.

"You're right, Colonel," the host exclaims, "A man has just shown us an example of perfect control."

"Just a minute," the American says, turning to his hostess. "Mrs. Wynnes, how did you know that cobra was in the room?"

A faint smile lights up the woman's face as she replies: "Because it was crawling across my foot."

Story from *Saturday Review*, © January 31, 1942

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THE FRAME

Name(s):

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THE PROBLEM-SOLVING CHART

Topic:

I Index the facts as you see them.	
D Define the problem.	
E Expand on ideas or possible alternatives.	
A Adopt a criterion.	
S Select and sell your idea to others involved.	

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THE DECISION MAKER'S FLOW CHART

Topic: _____

Need:

+

−

Decision:

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INVENT YOUR OWN GRAPHIC ORGANIZER

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There are

one-story intellects,

two-story intellects, and three-story

intellects with skylights. All fact collectors who have

no aim beyond their facts are one-story men. Two-story men compare,

reason, generalize, using the labor of fact collectors as their own.

Three-story men idealize, imagine, predict—

their best illumination comes

from above the skylight.

—Oliver Wendell

Holmes

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About the Author

James Bellanca

Nationally known as an expert in adult learning and motivation, Jim is executive director and founder of The IRI Group. A consultant and staff developer, Jim specializes in the practical applications of research-based teaching and school management, emphasizing the effectiveness of cooperative learning and thinking strategies in fostering higher achievement and educational restructuring. In addition to *The Cooperative Think Tank*, Jim has written and co-written more than a dozen books, including *Blueprints for Thinking in the Cooperative Classroom, Catch Them Thinking,* and *Building a Caring, Cooperative Classroom.*

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